

## ***Executive Summary***

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# EXECUTIVE SUMMARY

## 1.0 INTRODUCTION

On September 3, 2003, BHP Billiton LNG International Inc. (BHPB, or the Applicant) submitted a Deepwater Port Act application to the U.S. Coast Guard (USCG) and the U.S. Maritime Administration (MARAD) and an application for a lease of State lands to the California State Lands Commission (CSLC) to own, construct, and operate Cabrillo Port LNG Deepwater Port. The proposed facilities include: a new offshore liquefied natural gas (LNG) floating storage and regasification unit (FSRU) located 12.01 nautical miles (NM) (13.83 miles or 22.25 kilometers [km]) off the coast of Ventura County and Los Angeles County, California, in Federal waters approximately 2,900 feet (884 meters [m]) deep; new offshore and onshore natural gas pipelines; and related facilities (the Project). The Applicant's projected in-service life for the FSRU is a maximum of 40 years.

## FINAL ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT

Comments on both the October 2004 Draft EIS/EIR and the March 2006 Revised Draft EIR, and responses to those comments, are contained in Volume IV of this Final EIS/EIR. This document has been prepared to comply with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] §§ 1500–1508), Department of Homeland Security Environmental Planning Program (Management Directive 5100.1), U.S. Coast Guard (USCG) Implementation Regulations (Commandant's Instructions, National Environmental Policy Act: Implementing Procedures and Policy for Considering Environmental Impacts M16475.1D), the Deepwater Port Act, the California Environmental Quality Act (CEQA), and the State CEQA Guidelines (California Code of Regulations, Title 14, 15000 et seq.).

## Changes to the Project and Analyses Since Publication of the March 2006 Revised Draft EIR

In response to agency and public comments, the Applicant has revised the Project in several ways since the issuance of the March 2006 Revised Draft EIR as summarized below:

- **Reduction in the Number of LNG Carriers and Crew Vessel Trips.** A maximum of 99 LNG carrier arrivals would deliver no more than 13.7 million cubic meters of LNG annually. As the size of the LNG carriers would range between 138,000 and 210,000 cubic meters, the number of dockings would range between 65 and 99 per year. Previously the Applicant had proposed up to 130 LNG carriers dockings per year. Since a crew vessel would be present at every berthing and deberthing of every LNG carrier, the number of crew vessel round trips from Port Hueneme to Cabrillo Port would correspond to the number of LNG carrier dockings. Additional information is presented in Section 4.3.

- **Closed Tempered-Loop Cooling System.** The previously proposed FSRU generator engine cooling system would have used seawater as the source of cooling water for the four generator engines. The Applicant now proposes using a closed tempered-loop cooling system that circulates water from two of the eight submerged combustion vaporizers (SCVs) through the engine room and back to the SCVs. The seawater cooling system would serve as a backup system during maintenance of the SCVs or when the inert gas generator is operating. Additional information is presented in Section 2.2.2.4.

The following Project changes would reduce emissions of air pollutants and are presented in more detail in Section 4.6.

- **Use of Natural Gas to Power LNG Carriers in California Coastal Waters.** LNG carriers that would operate in California Coastal Waters, as designated by the California Air Resources Board, instead of only within 25 NM of the coastline, would be fueled with a 99 percent natural gas/1 percent diesel mixture.
- **Diesel-Fueled Support Vessels with Emission Controls.** Instead of fueling tugboats and the crew/supply vessel with LNG during Project operations, the Applicant would use diesel engines equipped with air pollution control technology that would reduce emissions of carbon monoxide, oxides of nitrogen, and reactive organic compounds comparable to or below levels that would have resulted from the use of natural gas-fueled engines.
- **Use of Specific Engine Standards for Onshore Construction Equipment.** Engines in onshore construction equipment would comply with the U.S. Environmental Protection Agency's tiered nonroad emission standards. As a result of the emission reductions, MARAD and the USCG have determined that the General Conformity Rule would not apply.

The Applicant has committed to implement the following additional measure to reduce air emissions:

- **Repowering of Existing Non-Project Vessels with Cleaner Burning Engines.** Two tugs that currently operate in the area and along the California coastline, but which are not related to Project operations, would be repowered with cleaner engines to achieve emissions reductions.

As part of its project description, BHPB proposes to implement numerous measures to reduce the severity of potential Project-related impacts. (These measures are identified by the prefix "AM" in Chapter 4, "Environmental Analysis," and Section 6.1, "Recommended Mitigation and Monitoring Program.") The California State Lands Commission (CSLC), in coordination with the U.S. Coast Guard (USCG) and the U.S. Maritime Administration (MARAD) has also recommended other measures to mitigate for potential significant impacts; these "mitigation measures" are separate from the Applicant's project description. (For further discussion, see Section 4.1, "Introduction to Environmental Analyses.")

## NEED FOR THE PROJECT

The overall Project purpose, need, and objectives are to increase the natural gas supply in California and to increase natural gas supply reliability and diversity.

The California Energy Commission (CEC) estimates that California's demand for all uses of natural gas will grow by approximately 0.7 percent annually from 2006 to 2016, even after taking into account maximum increased conservation and the use of renewable energy. According to the CEC's 2005 Natural Gas Assessment Update, California's total annual consumption of natural gas was 2,200 billion cubic feet in 2003; by 2013, natural gas demand in the State is projected to reach 2,400 billion cubic feet, in part as a result of the growing use of natural gas to generate electricity. The CEC has thus recommended that California secure and diversify its sources of natural gas to ensure a sufficient and reliable supply of natural gas.

The CEC and the California Public Utilities Commission (CPUC), in their 2005 Energy Action Plan II: Implementation Road Map for Energy Policies, state that California must promote infrastructure enhancements and diversify supply sources to include LNG. The plan includes the following key actions: (1) develop a process to facilitate the prompt and environmentally sensitive evaluation and siting of needed LNG facilities; (2) provide that the natural gas delivery and storage system is sufficient to meet California's peak demand needs; and (3) encourage the development of additional in-state natural gas storage to enhance reliability and mitigate price volatility.

## PUBLIC INVOLVEMENT

Preparation of the October 2004 Draft EIS/EIR began on February 3, 2004. A Notice of Intent/Notice of Preparation (NOI/NOP) was provided to the California State Clearinghouse for release on February 24, 2004, and was published in the Federal Register (Vol. 69, No. 39) on February 27, 2004. During the scoping period, which ended on March 31, 2004, the USCG, MARAD, and the CSLC held three open houses and three scoping meetings. All scoping meetings were held in wheelchair-accessible sites, and the NOI/NOP provided information for requesting special accommodations for the scoping meetings, such as simultaneous Spanish translation. The informal open house format allowed meeting participants to review displays, maps, and literature and to meet agency staff, members of the EIS/EIR project team, and BHPB personnel for one-on-one discussions. Repositories were provided to receive written comments. Approximately 305 persons attended the scoping meetings and open houses in Oxnard and Malibu.

In addition to comments received during these scoping meetings, the USCG and the CSLC received more than 150 electronic-mail messages, postcards, and letters from elected officials, agencies, organizations, and private citizens during the scoping period. All scoping comments, resolutions, and transcripts of public meetings are available on the U.S. Department of Transportation (USDOT) docket (<http://dms.dot.gov>, docket number 16877). Transcripts are also posted on the Project public-access website <http://www.cabrilloport.ene.com>.

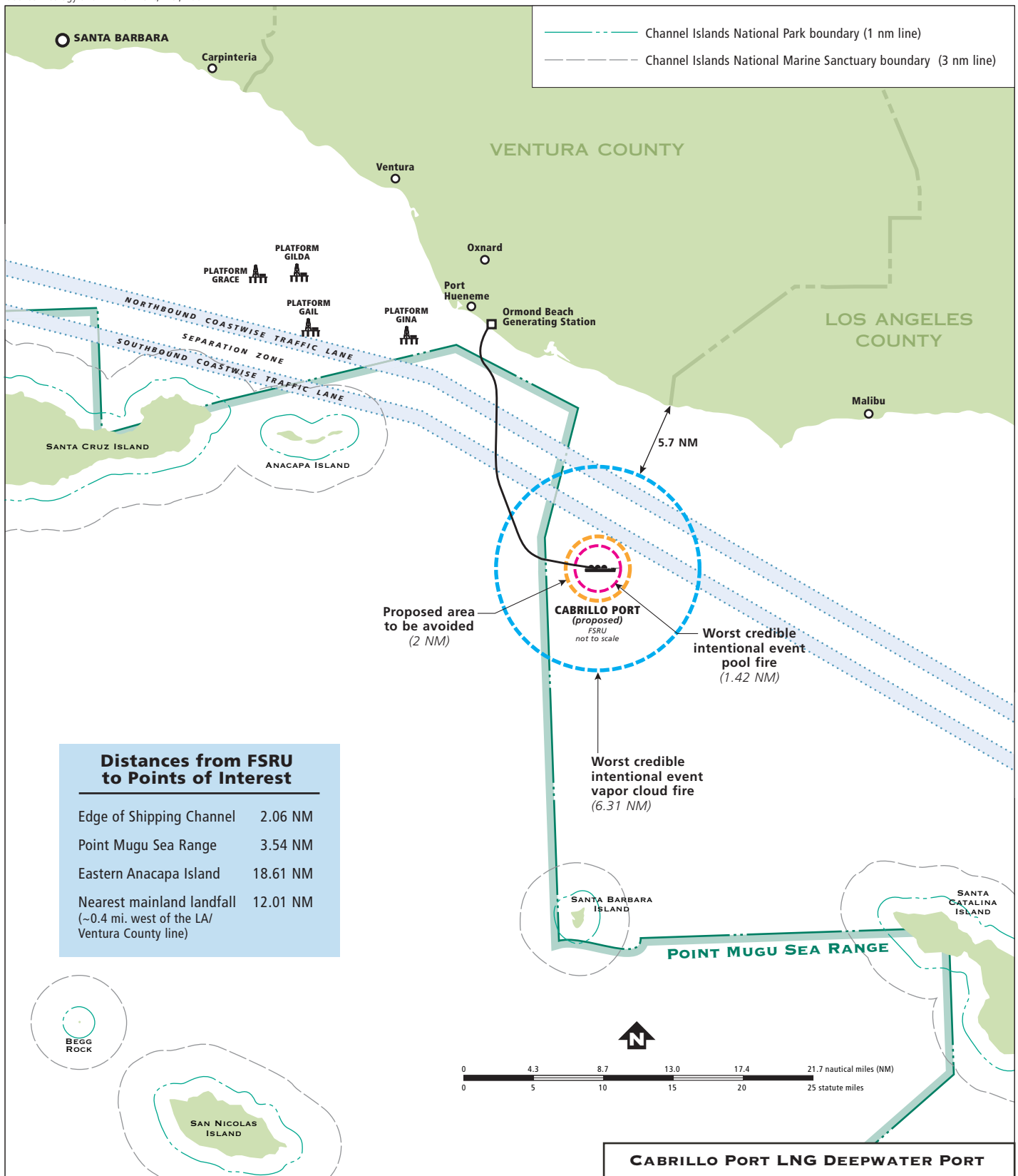
During the comment period following publication of the October 2004 Draft EIS/EIR, the USCG, MARAD, and the CSLC held four open houses and four public meetings. Approximately 676 persons attended the public meetings and open houses in Santa Clarita, Oxnard, and Malibu, and 195 people gave oral comments at these meetings. In addition, the USCG and CSLC received more than 524 electronic-mail messages, postcards, and letters from elected officials, agencies, organizations, and private citizens with comments on the October 2004 Draft EIS/EIR. All of the comments received during the scoping process and comment period for the October 2004 Draft EIS/EIR were reviewed by the lead agencies, and the March 2006 Revised Draft EIR identified and addressed environmental issues raised in those comments.

On March 13, 2006, the CSLC submitted a Notice of Availability and the Revised Draft EIR to the California State Clearinghouse. The public comment period initiated by the Notice of Availability (45 days) was subsequently extended and ended on May 12, 2006. In addition to the USEPA headquarters and the State Clearinghouse, copies of the Revised Draft EIR were distributed to Federal, State, and locally elected officials and agencies; regional regulatory boards; local planning staffs; and the public. A Spanish translation of the Revised Draft EIR was published and made available upon request. Several comments suggested specific mitigation measures; this document describes feasible mitigation measures to minimize significant adverse impacts. In addition, comments were received expressing either opposition or support for the Project. This document does not need to reflect those views; however, all comments received are part of the public record and will be made available to decision-makers.

This document is filed with the USEPA headquarters and the California State Clearinghouse and is available at local libraries and on the CSLC website (<http://www.slc.ca.gov>). It has been mailed to Federal, State, and local agencies, elected officials, newspapers, public libraries, and other interested parties. After publication of this document, MARAD and the USCG will hold a final public hearing on the application, and the CSLC will hold a public hearing to certify the EIR and make the decision whether to grant a lease. Section 1.2.1 provides more information on the Federal and State hearing process. The California Coastal Commission will also hold a hearing. A 30-day waiting period is required before issuance of the Federal Record of Decision. Comments received will be evaluated before any final decision is made regarding the proposed Project.

## **2.0 SUMMARY DESCRIPTION OF THE PROPOSED PROJECT**

The Project would consist of three main components: the FSRU, which would be anchored and moored on the ocean floor for the life of the Project in Federal waters 12.01 NM (13.83 miles or 22.25 km) off the coast of Ventura and Los Angeles Counties, in waters approximately 2,900 feet (884 m) deep; offshore and shore crossing pipelines; and pipelines within the City of Oxnard, unincorporated areas of Ventura County, and the City of Santa Clarita in Los Angeles County, along with three expanded or modified existing onshore valve stations (see Figures ES-1 and ES-2).



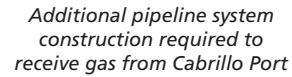
**CABRILLO PORT LNG DEEPWATER PORT**

Figure ES-1

**Consequence Distances  
Surrounding the FSRU Location  
for Worst Credible Events**







## Proposed Project Components

(see Figure ES-3 for alternatives considered)



The Applicant would install, own, operate, and maintain the FSRU and the offshore pipelines from the FSRU to the Ormond Beach Metering Station. The Applicant would also fund the construction of the onshore facilities, which SoCalGas would ultimately own, operate, and maintain.

As proposed, LNG from the Pacific basin would be delivered by LNG carriers, offloaded to the FSRU, and regasified under highly instrumented and monitored/controlled conditions on the FSRU. The natural gas would be transmitted through flexible risers to two parallel 24-inch (0.6 m) diameter subsea (offshore) gas transmission pipelines laid on the ocean floor about 100 feet (30.5 m) apart from one another and delivered to shore. The total length of the pipelines from the pipeline ending manifold at the FSRU to the onshore main line valve would be approximately 22.77 miles (36.64 km). A 200-foot (61 m) wide right-of-way (ROW) would be used for construction and would be established permanently in the offshore areas in which the 24-inch (0.6 m) pipelines would be laid. These pipelines would come onshore at Ormond Beach near Oxnard in Ventura County.

The FSRU would be permanently moored to a turret system (a tower-like revolving structure) that would allow it to rotate (weathervane) around a fixed point. The FSRU, which would be designed for loading LNG from a side-by-side, moored LNG carrier, would be vessel-shaped, double-sided, double-bottomed, and 971 feet (296 m) long and 213 feet (65 m) wide, with a water displacement of approximately 190,000 deadweight tons (193,050 metric tons).

The FSRU would receive LNG shipments once or twice per week. Ships would be berthed and unloaded on the starboard (right) side of the FSRU. The FSRU would store the offloaded LNG in three Moss spherical tanks. Onboard utilities and systems associated with FSRU operations would include electric power generation and distribution, instrumentation and controls, and fire and safety systems. Cabrillo Port would include all marine systems, communications, navigation aids, and equipment necessary to safely conduct LNG carrier operations and receive product.

The subsea pipelines would come ashore and terminate at a new metering station on the existing Reliant Energy Ormond Beach Generating Station to tie into the SoCalGas natural gas pipeline system. Horizontal directional boring (HDB) technology would be used to place the pipelines at least 50 feet (15.2 m) below the surface of the beach and the adjacent sea level except at both ends of the crossing, where the pipelines slope up to meet the entry and exit points. Each of the two HDB shore approaches for the Project is expected to be approximately 4,265 feet (1,300 m) in length and would be parallel to each other, with approximately 100 feet (30.5 m) of separation.

Two new onshore pipelines—the Center Road Pipeline in Oxnard and Ventura County and the Line 225 Loop Pipeline in Santa Clarita in Los Angeles County—would be constructed to connect the offshore pipeline with the existing SoCalGas intrastate pipeline system to distribute the natural gas to customers throughout the Southern California region. The onshore Center Road Pipeline and Line 225 Loop Pipeline, along with associated facilities such as a metering station for the Center Road Pipeline, a

1 backup odorant injection system, and block valves on both pipelines, would be installed  
2 where existing pipelines are not large enough to accommodate the proposed additional  
3 supply. The Center Road Pipeline would consist of approximately 14.7 miles (23.7 km)  
4 of new 36-inch (0.9 m) diameter pipeline. The Line 225 Loop Pipeline would consist of  
5 approximately 7.7 miles (12.4 km) of new 30-inch (0.76 m) diameter pipeline, generally  
6 paralleling the existing Line 225 Pipeline. The pipelines would be constructed, owned,  
7 and operated by SoCalGas.

### 8 **3.0 PROJECT ALTERNATIVES**

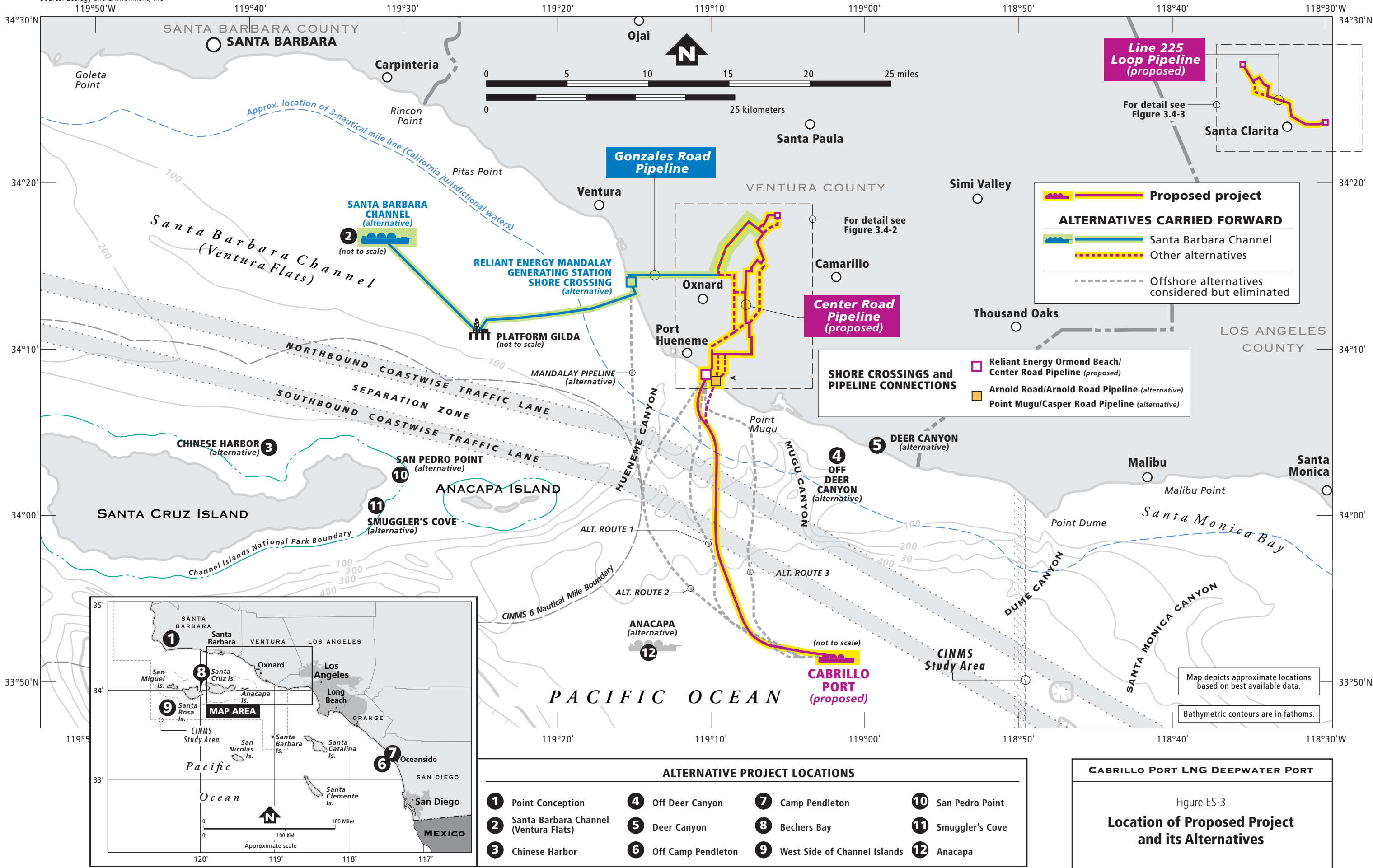
9 This document presents a reasonable range of alternatives in accordance with NEPA  
10 and the CEQA. Figure ES-3 presents the proposed Project and its alternatives. Table  
11 ES-0 lists the Class I impacts for the proposed Cabrillo Port Project, the proposed Port  
12 of Long Beach Sound Energy Solutions LNG Import Terminal, and the proposed North  
13 Baja Pipeline Expansion Project. Each analysis is based on different project-specific  
14 significance criteria by which impacts were evaluated; therefore, it is difficult to directly  
15 compare the nature and character of Class I impacts among the three projects.  
16 Nonetheless, Table ES-0 enumerates the types of Class I impacts that would be  
17 anticipated in the implementation of each project.

18 For this Project, alternatives were retained for evaluation if they would feasibly attain  
19 most of the basic objectives of the proposed Project but would avoid or substantially  
20 lessen any of the significant effects of the proposed Project.

#### 21 **No Action/No Project Alternative**

22 Under the No Action Alternative, MARAD would deny the license for the Cabrillo Port  
23 Project, the Governor of California would disapprove the Project under the provisions of  
24 the Deepwater Port Act, or the CSLC would deny the application for the proposed lease  
25 of State tide and submerged lands for a pipeline ROW. Any of these actions or  
26 disapproval by any other permitting agency could result in the Project not proceeding.  
27 The No Action Alternative means that the Project would not go forward and the FSRU,  
28 associated subsea pipelines, and onshore pipelines and related facilities would not be  
29 installed. Accordingly, none of the potential environmental impacts identified for the  
30 construction and operation of the proposed Project would occur.

31 Since the proposed Project is privately funded, it is unknown whether the Applicant  
32 would fund proceed with another energy project in California.; however, should the No  
33 Action Alternative be selected, energy needs would likely be addressed through other  
34 means, such as through other LNG or natural gas-related pipeline projects.





**Table ES-0 Class I Project Impacts – Cabrillo Port, Port of Long Beach, and North Baja Projects**

	<b>Cabrillo Port LNG Deepwater Port</b>	<b>Port of Long Beach LNG Import Project</b>	<b>North Baja Pipeline Expansion Project</b>
<b>Public Safety</b>	<p><b>Impact PS-2</b> - A high-energy collision or an intentional attack could cause a rupture of the Moss tanks holding LNG, leading to a release of an unignited flammable vapor cloud that could extend beyond the safety zone.</p> <p><b>Impact PS-3</b> - Fishing gear could become hung up on the pipeline and potentially damage one or both of the subsea pipelines. Similar damage may occur due to a seismic event or subsea landslide.</p> <p><b>Impact PS-4</b> - The potential exists for accidental or intentional damage to the onshore pipelines or valves carrying odorized natural gas. Damage may occur due to human error, equipment failure, natural phenomena (earthquake, landslide, etc.). This would result in the release of an odorized natural gas cloud at concentrations that are likely to be in the flammable range. Potential damage to the onshore pipelines or valves due to human error, equipment failure, or natural phenomena could cause the release of an odorized natural gas cloud (potentially flammable).</p> <p><b>Impact PS-5</b> - In the event of an accident, there is a greater likelihood of injury, fatality, and property damage near Center Road Pipeline, a High Consequence Area (HCA).</p>	--	--
<b>Marine Traffic</b>	--	--	--
<b>Aesthetics</b>	<b>Impact AES-3</b> - The FSRU would change the visual character of the ocean view for recreational boaters.	--	--

**Table ES-0 Class I Project Impacts – Cabrillo Port, Port of Long Beach, and North Baja Projects**

	<b>Cabrillo Port LNG Deepwater Port</b>	<b>Port of Long Beach LNG Import Project</b>	<b>North Baja Pipeline Expansion Project</b>
<b>Agriculture and Soil Resources</b>	<b>Impact AGR-2</b> - Expansion of the Center Road Valve Station in Ventura County would require conversion of approximately 0.1 acre (0.04 hectares[ha]) of agricultural land to non-agricultural uses.	--	--
<b>Air Quality</b>	<p><b>Impact AIR-1</b> - Project construction activities in Ventura and Los Angeles Counties would generate emissions that exceed quantitative thresholds for criteria pollutants in designated air quality nonattainment areas.</p> <p><b>Impact AIR-2</b> - Onshore Project construction activities would generate particulate emissions that could cause or contribute to existing or projected violations of ambient air quality standards.</p> <p><b>Impact AIR-3</b> - An LNG spill from the FSRU or a pipeline rupture would result in a natural gas release and/or a fire that could cause temporary increases in ambient air concentrations of criteria pollutants in excess of air quality standards, expose sensitive receptors to substantial concentrations of toxic air contaminants, and/or create objectionable odors.</p> <p><b>Impact AIR-5</b> - Emissions of nitrous oxides (NOx) and reactive organic compounds (ROC) generated from LNG carriers, tugboats, and the crew/supply vessel operating in California Coastal Waters could contribute to ambient ozone impact areas downwind of the Project.</p>	<p><b>Impact ARM2</b> - Construction emissions would exceed the South Coast Air Quality Management District (SCAQMD) significance thresholds for all criteria pollutants except sulfur oxides (SOx) on a peak daily and quarterly basis.</p> <p><b>Impact ARM3</b> - The project's operational emissions would exceed the daily SCAQMD significance thresholds. The project's impact would be considered significant for ozone (NOx and ROC), particulate matter less than 10 microns in diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5), and SOx. The project's impact would not be considered significant for carbon monoxide.</p> <p><b>Impact ARM4</b> - The project proponent did not provide an air conformity analysis for emissions that would exceed the de minimis levels of the pollutant(s) for which an air basin is in non-attainment. Until this information is provided the Project is deemed to not conform to the applicable State Implementation Plan (SIP) and Air Quality Management district (AQMP).</p>	--
<b>Biological Resources – Marine</b>	<b>Impact BioMar-6</b> - An accidental release of a natural gas, fuel, or oil could cause morbidity or mortality of marine biota, including fish, invertebrates, sea birds, and sea turtles, through direct contact or ingestion of the material.	--	--



Table ES-0 Class I Project Impacts – Cabrillo Port, Port of Long Beach, and North Baja Projects

	Cabrillo Port LNG Deepwater Port	Port of Long Beach LNG Import Project	North Baja Pipeline Expansion Project
	<b>Impact BioMar-8</b> - A release of LNG, natural gas, fuel, or oil could cause injury or mortality of marine mammals through direct contact or ingestion of the material.		
<b>Biological Resources – Terrestrial</b>	--	--	<b>Impact NBP57</b> – Construction-related impacts on desert tortoise. <b>Impact NBP58</b> – Adverse impacts on the desert tortoise and its critical habitat. <b>Impact NBP60</b> – Potential construction impacts on the Peirson's milk-vetch <b>Impact NBP61</b> – Adverse impacts on the Peirson's milk-vetch <b>Impact NBP78</b> – Project components would cross suitable habitat for the flat-tailed horned lizard.
<b>Cultural Resources</b>	--	--	--
<b>Energy and Mineral Resources</b>	--	--	--
<b>Geologic Hazards</b>	--	--	--
<b>Hazardous Materials</b>	--	--	--
<b>Land Use</b>	--	--	--
<b>Noise and Vibration</b>	<b>Impact NOI-2</b> - Recreational boaters and fishers at certain distances from the facility could hear noise generated by FSRU operations over the long-term. <b>Impact NOI-3</b> - LNG carriers, crew boats and supply vessels, or helicopters could temporarily increase noise levels for sensitive receptors. <b>Impact NOI-4</b> - HDB at the shore crossing and HDD or other drilling techniques at onshore	--	--

**Table ES-0 Class I Project Impacts – Cabrillo Port, Port of Long Beach, and North Baja Projects**

	<b>Cabrillo Port LNG Deepwater Port</b>	<b>Port of Long Beach LNG Import Project</b>	<b>North Baja Pipeline Expansion Project</b>
	<p>waterways and intersection crossings could temporarily increase noise levels for sensitive receptors. Noise levels could exceed local noise ordinances or permit conditions.</p> <p><b>Impact NOI-5</b> - HDB, HDD, boring, trenching, and other construction activities could temporarily create vibration levels at sensitive receptors.</p> <p><b>Impact NOI-6</b> - Site preparation, pipeline installation, and construction of aboveground facilities could temporarily increase noise levels for sensitive receptors such as schools and residences. Noise levels may exceed county and/or city noise ordinances or permit conditions during the installation of the onshore pipeline and associated structures.</p>		
<b>Recreation</b>	<b>Impact REC-3</b> - The presence of the Project would alter the recreational experience of recreational boaters, including visitors on whale-watching trips and other visitors to the Channel Islands National Park.	--	--
<b>Socioeconomics</b>	--	--	--
<b>Transportation</b>	--	--	--
<b>Water Quality and Sediments</b>	<b>Impact WAT-5b</b> - An accidental release of diesel fuel to marine waters violates Federal and State water quality standards or objectives.	--	--
<b>Environmental Justice</b>	--	--	--

Sources: FERC and Port of Long Beach 2005; FERC and CSLC 2006.

Notes:

Class I impacts are based on each project's unique significance criteria; therefore, impacts must be viewed within the context of each project.

-- = no identified Class I impact.

## **ALTERNATIVE DEEPWATER PORT, SUBSEA PIPELINE, SHORE CROSSING, AND ONSHORE PIPELINE LOCATION – SANTA BARBARA CHANNEL/MANDALAY SHORE CROSSING/GONZALES ROAD PIPELINE ALTERNATIVE**

One alternative considered was an alternative deepwater port location and the subsea pipeline, shore crossing, and onshore pipeline required to serve a deepwater port at that alternative location. Under this alternative, the FSRU would be moored in the Santa Barbara Channel, the shore crossing would be at Mandalay Beach, and the onshore pipeline would follow Gonzales Road to Rose Road to Los Angeles Road to Santa Clara Road to La Vista Avenue to the Center Road Valve Station.

## **ALTERNATIVE SHORE CROSSINGS**

Two alternative shore crossings were evaluated (in addition to the Mandalay shore crossing that is part of the Santa Barbara Channel alternative). These alternative routes would have different HDB entry and exit points than those for the proposed Project and would connect to the SoCalGas pipeline ROW at different locations—at Arnold Road, and at the Naval Base Ventura County Point Mugu. Both shore crossing alternatives would require the construction of new metering stations.

## **ONSHORE PIPELINE ROUTE ALTERNATIVES**

Alternative routes between the Reliant Energy Ormond Beach Generating Station shore crossing and the Center Road Valve Station are identified in this document as Center Road Alternatives 1, 2, and 3. Center Road Pipeline Alternative 1 has been retained because it was the proposed route in the Applicant's original application for the Project. It traverses densely populated areas of Oxnard and would use existing utility ROWs. Center Road Pipeline Alternative 2 avoids most of the population centers in Oxnard and Ventura County and would traverse mostly agricultural areas. Center Road Pipeline Alternative 3 differs from the proposed route only in the northernmost 2.1 miles (3.4 km) of the route. Center Road Pipeline Alternative 3 was the proposed Center Road Pipeline route of the October 2004 Draft EIS/EIR; the proposed route of the Center Road Pipeline in this document is farther away from Mesa Union School than the Center Road Pipeline Alternative 3.

The Line 225 Pipeline Loop Alternative route is similar to the proposed Project but has an alternative stream crossing. This alternative route would be shorter and would traverse less dense housing and more open space.

## **4.0 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

This document analyzes the environmental issues associated with the construction, operation, maintenance, and, to a lesser extent, decommissioning of the proposed Project. Decommissioning would be analyzed in a subsequent environmental review at the end of the Project life. The impact analysis uses information provided by the Applicant in the initial applications and in response to subsequent data requests; field investigations and surveys; public scoping; literature research; alternative analyses;

contacts with Federal, State, and local agencies; and other information from public groups and organizations.

In addition to an Operations Manual and Security Plan for the FSRU and pipelines, the Applicant has prepared or would prepare and implement specific plans that include measures to avoid or mitigate potential impacts. These plans include, among others, a Spill Prevention, Control, and Countermeasures Plan; a Construction Fugitive Dust Plan; a Storm Water Pollution Prevention Plan; an Erosion Control Plan; a Weed Management Plan; and a Biological Resources Mitigation and Monitoring Plan.

Specific mitigation measures that are feasible were identified as part of the environmental analysis. When implemented, these measures would reduce potential adverse impacts of Project construction and operation to a level that is below the significance criteria. Table ES-5 at the end of the Executive Summary lists the anticipated impacts of the Project and measures that would be implemented to mitigate those impacts. Measures that the Applicant has incorporated into the Project to reduce impacts that go beyond regulatory requirements are termed Applicant measures and are denoted as **AM**. Agency-proposed mitigation measures are denoted as **MM**. A Mitigation Monitoring Program is provided in Chapter 6 of this document.

The environmental effects of constructing and operating the Project as proposed are summarized below.

#### **4.1 OCEANOGRAPHY AND METEOROLOGY**

The FSRU and its mooring system must be designed to withstand a 100-year wave event, including wind, waves, and current. The Cabrillo Port area is sheltered from waves from the northwest by Point Conception and the Channel Islands. In addition, the area is partially sheltered from some south swell directions by the Santa Catalina, San Clemente, and Santa Barbara Islands. As a result, the average wave height in the proposed Cabrillo Port area is considerably lower than the average wave height seaward of the Channel Islands, but the directional wave spectra (distribution of wave energy with wave direction) at the site is much more complex than that in the open ocean.

Circulation in the Southern California Bight is complex. Regionally, two currents dominate circulation in the Southern California Bight: the California Current flows toward the equator and the Southern California Countercurrent flows towards the North Pole. The proposed Cabrillo Port site is at the inshore side of the Southern California Bight, where the mean circulation is counterclockwise. A northward countercurrent exists near the proposed site. This countercurrent is strongest in summer and early fall and weak or even nonexistent in spring. The southward California Current flows approximately 50 NM to 80 NM (60 to 90 statute miles or 100 to 150 km) offshore and therefore does not influence the Project site. Currents near the proposed site are typically northward in summer, fall, and winter.

The climate of the Northern Channel Islands is characterized by mild winters and dry summers and is dominated by a strong and persistent high-pressure system known as the Pacific High, which influences the presence of temperature inversions. The coast has early morning southeast winds (offshore), which shift to the northwest as the day progresses. In late spring and early summer, the northwest winds transport cool, humid marine air onshore, causing frequent fog and low clouds on the coast at night and in the morning. Sea breezes are generally from the west, west-northwest, and northwest, and occur about 44 percent of the time throughout the year. At one buoy location near the proposed site, the maximum average wind speed was 43.1 miles per hour (mph) (19.3 meters per second [m/s]), and the maximum peak wind gust was 55 mph (24.6 m/s). The maximum hourly peak gust was 55.1 mph (24.6 m/s).

In general, for objects more than 10 miles (16 km) away, the greatest visibility (the least fog layer or haze occurs in winter and diminishes from spring through summer.

## **4.2 PUBLIC SAFETY**

Public safety issues associated with the transport of LNG in carriers, storage and offshore handling of LNG at the FSRU, and offshore and onshore pipeline transport of odorized natural gas after it has been regasified aboard the FSRU were evaluated. The effects analyzed include serious injury or fatality and long-term damage to the environment.

At the beginning of the NEPA/CEQA process, the lead agencies determined that an independent risk assessment (IRA) would be required to address public questions about the safety of the proposed Project. They retained a team of independent experts to prepare a site-specific evaluation of the design concept and security plans for Cabrillo Port, taking into consideration local environmental conditions and the concerns expressed by the public during scoping. Subsequently, in December 2004, after publication of the October 2004 Draft EIS/EIR, Sandia National Laboratories (Sandia) issued its guidance report (Sandia 2004). The guidance report lays out a recommended framework for analyses of large LNG spills onto water.

MARAD and the USCG commissioned the authors of the Sandia guidance report to conduct a third-party technical review of the IRA that had been prepared for the proposed Project in 2004. Sandia reviewed the methodology used in the 2004 IRA and made recommendations for revised modeling and analysis in its 2006 report (Appendix C2 of this document). Sandia also participated in defining the credible intentional scenarios for assessment. The 2006 IRA (Appendix C1 of this document) incorporates Sandia's recommendations, and the conclusions and recommendations of the 2006 IRA are the result of collaboration and concurrence between Sandia and the IRA authors. The public safety analysis of the FSRU in Section 4.2 is based on the 2006 IRA and on the Sandia guidance.

The IRA defines and evaluates representative worst credible cases (scenarios of events that would lead to the most serious potential impacts on public safety). These included accidents that would affect one, two, or all three tanks of the FSRU. However, Sandia

found that a three-tank simultaneous release (a massive LNG release in a short time period) was not credible.

The IRA uses the types of computer models and assumptions that were reviewed by Sandia to determine the potential consequences associated with the proposed LNG deepwater port; the IRA modeling provides the basis for the impact analysis. The IRA concludes that, given the many safety features that have been incorporated in the design of the proposed Project, accidents at the FSRU would be rare and would not reach shore, even in the case of a worst credible release such as a deliberate attack, although recreational boaters and fishermen within the defined impact area and commercial ships within the Traffic Separation Scheme could be affected. The IRA also recommends that additional safety analyses be conducted and the results incorporated into the final design and operations of the proposed Project.

Table ES-1 presents the IRA's summary of FSRU accident consequences. Figure ES-1 identifies the areas that would be affected by the consequences of potential worst credible accidental and intentional events at the FSRU. As shown, the impact distances from accidental releases and intentional events are much less than the distance to shore, and the only members of the public expected to be at risk on a predictable basis would be in the designated area of impact and in the coastal shipping lanes. The coastwise shipping lane is approximately 2 NM (2.4 miles or 3.8 km) away.

The greatest distance for public impacts calculated in the IRA is 6.31 NM (7.27 miles or 11.7 km) for an intentional threat—a two-tank simultaneous release. This hazard distance would encompass the shipping lane but would extend no closer than 5.7 NM (6.6 miles or 10.6 km) from the nearest mainland landfall. The hazard to the shipping lane would occur about 30 minutes after the initiating event, which could allow for notification and response. The exposure time within the shipping lane would be for about another 30 minutes until the vapor cloud dispersion would fall below the lower flammability limit. An average of three vessels would be exposed to this vapor cloud hazard based on marine traffic frequency estimates. The IRA did not estimate frequencies of intentional acts due to great uncertainties in such estimates.

In a worst credible case scenario an ignition source would most likely be present, which would result in a pool fire instead of vapor cloud dispersion or a vapor cloud (flash) fire. The robust structure of the Moss tanks and double-hulled FSRU and the nature of the events that could produce this scenario (such as a deliberate attack with various types of weapons or aircraft) make it very likely that an ignition source would be present. Because an exceptionally large amount of force is needed to damage an LNG tank, and because the amount of energy required to breach containment is so large, in almost all cases a pool fire and not a vapor cloud (flash) fire would result from this type of terrorist attack.

Pool fire hazards were not predicted to reach the coastwise shipping lane. An escalation event resulting in the cascading breach of three Moss tanks with subsequent pool fire would produce an injury level threshold that would reach 1.7 NM (2 miles or 3.2 km) from the release point at the FSRU, 1.6 NM (1.8 miles or 3 km) for the marine

**Table ES-1 Summary of FSRU Accident Consequences**

	Marine Collision <sup>b</sup>	Intentional <sup>b</sup>	Escalation <sup>c,d</sup>	
Breach size	1300 m <sup>2</sup> of area	7m <sup>2</sup> & 7m <sup>2</sup>	7m <sup>2</sup> & 1300 m <sup>2</sup>	7m <sup>2</sup> & 2x1300 m <sup>2</sup>
Number of tanks	50% volume of 1 tank	2	2	3
Release quantity (gal / m <sup>3</sup> ) <sup>e</sup>	13,000,000 / 50,000	53,000,000 / 200,000	40,000,000 / 150,000	53,000,000 / 200,000
	Pool Spread Distance			
Distance downrange (NM / miles / m)	0.40 / 0.45 / 730	0.35 / 0.40 / 650	0.33 / 0.38 / 610	0.43 / 0.50 / 800
	Pool Fire			
Radiative flux distance > 5 kW/m <sup>2</sup> (NM / miles / m)	1.60 / 1.85 / 2,970	1.42 / 1.64 / 2,640	1.35 / 1.56 / 2,510	1.74 / 2.01 / 3,230
Radiative flux distance > 12.5 kW/m <sup>2</sup> (NM / miles / m)	0.99 / 1.14 / 1,830	0.87 / 1.01 / 1,620	0.83 / 0.96 / 1,540	1.07 / 1.24 / 1,990
Radiative flux distance > 37.5 kW/m <sup>2</sup> (NM / miles / m)	0.49 / 0.57 / 910	0.44 / 0.50 / 810	0.42 / 0.48 / 770	0.54 / 0.62 / 1,000
	Vapor Cloud Dispersion (No Ignition)		Immediate Ignition No Vapor Cloud Hazard	
Average flammable height (feet / m)	69.9 / 21	98 / 30		
Maximum distance to LFL (NM / miles / m)	2.85 / 3.29 / 5,290	6.03 / 6.95 / 11,175		
Time for maximum distance (min) <sup>a</sup>	50	89		
	Vapor Cloud (Flash) Fire			
Radiative flux distance > 5 kW/m <sup>2</sup> (NM / miles / m) <sup>f</sup>	3.57 / 4.11 / 6,610	6.31 / 7.27 / 11,700		
Radiative flux distance > 12.5 kW/m <sup>2</sup> (NM / miles / m) <sup>f</sup>	3.29 / 3.79 / 6,100	6.21 / 7.15 / 11,500		
Radiative flux distance > 37.5 kW/m <sup>2</sup> (NM / miles / m) <sup>f</sup>	3.06 / 3.52 / 5,670	6.12 / 7.05 / 11,340		

Source: Risknology 2006, Table 3.8 (see Appendix C1).

**Notes:**

Pool fires and vapor cloud fires are mutually exclusive.

All radiative flux distances given from release location.

LFL = lower flammability limit; NM = nautical miles; m = meters.

Wind speed = 2 meters per second; temperature = 21 °C.

<sup>a</sup>Time includes liquid dispersion and evaporation.

<sup>b</sup>Mass balance flux rate = 0.282 kg/m<sup>2</sup> sec.

<sup>c</sup>Mass balance flux rate = 0.135 kg/m<sup>2</sup> sec.

<sup>d</sup>The escalation case was modeled as a pool fire resulting from a breach of secondary containment due to the effects of a fire. Since ignition is guaranteed, no dispersion cloud develops.

<sup>e</sup>Tank volume of 100,000 m<sup>3</sup> is used for ease of calculations; actual tank volume is 90,800 m<sup>3</sup>.

<sup>f</sup> See Section 4.2.7.2 for definitions of radiative flux levels.

collision scenario, and 1.4 NM (1.6 miles or 2.6 km) for the intentional two-Moss tank breach.

The IRA states that the Moss tank demonstrates a very robust design against marine collisions. Only vessels with very specific geometry, strength, and speed have the physical capacity to penetrate the hull's structural steel and breach the cargo containment. The IRA concludes that accidental marine collisions are improbable.

The IRA evaluated the potential consequences of an accident based on the total volume of LNG that would be stored on the FSRU or in an LNG carrier while berthed at the FSRU during unloading. The amount of LNG that would be released would never exceed the total storage capacity of the FSRU because prior to the arrival of LNG carriers delivering LNG to the FSRU, the FSRU would regasify enough LNG and send it to shore via the offshore pipelines to make room for the new delivery. The LNG carriers would use routes that are farther from shore than the FSRU and therefore farther away than the FSRU from most recreational boating and fishing areas and the vessel traffic lanes. As such, LNG carriers would not present risks or hazards to the general public while in transit to the FSRU. Since the objective of the IRA was to evaluate risks to the public, it did not consider the potential effects of an accident at an LNG carrier during transit to the FSRU.

Numerous State and Federal agencies would be responsible for reviewing the safety of the design and ensuring the safe operation of the FSRU and pipelines. Table ES-2 shows the major regulatory requirements and design standards that would apply to LNG carriers and the FSRU (also see Appendix C3). The impact analysis presumes that the plans, procedures, and design requirements specified would be implemented. In the 40 years that the LNG industry has been operating, fewer than 20 marine accidents involving LNG have occurred worldwide, none of which resulted in a significant release of LNG (see Chronological List of LNG Accidents in Appendix C3). The USCG would respond to emergencies at the FSRU or an LNG carrier.

**Table ES-2 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding the FSRU and LNG Carriers<sup>a</sup>**

Law/Regulation/Plan/ Agency	Key Elements and Thresholds; Applicable Permits
<b>International</b>	
International Safety Management Code	<ul style="list-style-type: none"> <li>• Applicable to LNG carriers.</li> <li>• Section 1.2.2.2 establishes safeguards against all identified risks.</li> <li>• Section 1.4.5 identifies procedures to prepare for and respond to emergency situations.</li> </ul>
<b>Federal<sup>b</sup></b>	
Deepwater Port Act (DWPA), as amended, 33 U.S.C. § 1501 et seq. - USCG	<ul style="list-style-type: none"> <li>• Establishes the regulatory regime for the location, ownership, construction, and operation of deepwater ports beyond the State's seaward boundary.</li> </ul>



**Table ES-2 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding the FSRU and LNG Carriersa**

Law/Regulation/Plan/ Agency	Key Elements and Thresholds; Applicable Permits
33 Code of Federal Regulations (CFR) Part 96, Rules for the Safe Operation of Vessels and Safety Management Systems - USCG	<ul style="list-style-type: none"> <li>• Applicable to LNG carriers.</li> <li>• 33 CFR § 96.240(e) states that the functional requirements of a safety management system must include procedures to prepare for and respond to emergency situations by shore side and shipboard personnel.</li> <li>• 33 CFR § 96.250(h) states that emergency preparedness procedures must (1) Identify, describe and direct response to potential emergency shipboard situations; (2) Set up programs for drills and exercises to prepare for emergency actions; and (3) Make sure that the company's organization can respond at anytime, to hazards, accidents and emergency situations involving their vessel(s).</li> </ul>
33 CFR Parts 104, 105, and 106 - USCG	<ul style="list-style-type: none"> <li>• Requires vessel owners or operators to develop and submit a vessel security plan to the USCG. The format and requirements for the plan are specified in the regulations.</li> <li>• Requires the owner or operator of facilities that receive more than 150 passengers or more than 100 gross tons of cargo that support the production, exploration, or development of oil and natural gas to adhere to facility security requirements specified in these regulations; conduct a facility security assessment; and develop and implement a facility security plan.</li> </ul>
33 CFR Part 150 - USCG	<ul style="list-style-type: none"> <li>• Describes requirements for deepwater port operations.</li> <li>• Subpart A: describes requirements for operations manuals, facility spill response plans.</li> <li>• Subpart B: describes requirements for inspections and notifications upon receipt of classification society certifications.</li> <li>• Subpart C: describes port personnel qualifications and training.</li> <li>• Subpart D: describes requirements for radar surveillance, tanker advisories, vessel operation within the safety zone, emergency actions.</li> <li>• Subpart E: describes requirements for cargo transfer operations.</li> <li>• Subpart F: describes inspection, maintenance, and repair requirements for emergency equipment.</li> <li>• Subpart G: specifies workplace safety and health requirements.</li> <li>• Subpart H: specifies requirements for lights and sound signals as aids to navigation.</li> <li>• Subpart I: specifies requirements for reporting casualties, problems with navigation aids, pollution incidents, sabotage or subversive activity, and recordkeeping.</li> <li>• Subpart J: describes how Safety Zones, No Anchoring Areas, and Areas to be Avoided are defined and how notice may be provided to mariners.</li> </ul>
33 CFR Part 148, Subparts A and G - USCG	<ul style="list-style-type: none"> <li>• Prescribes requirements for activities involved in site evaluation and pre-construction testing at potential locations that may pose a threat to human health or welfare.</li> <li>• Defines how the DWPA interacts with other Federal and State laws; requires the construction plan to incorporate best available technology and industry practices. Defines general design, construction, and operational criteria for deepwater ports.</li> </ul>

**Table ES-2 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding the FSRU and LNG Carriers<sup>a</sup>**

Law/Regulation/Plan/Agency	Key Elements and Thresholds; Applicable Permits
33 CFR Part 149, Subparts A, B, D, E, and F - USCG	<ul style="list-style-type: none"> <li>Describes the process for submitting alterations and modifications affecting the design and construction of a deepwater port.</li> <li>Defines pollution prevention requirements for discharge containment, valves, monitoring and alarm systems, and communications equipment.</li> <li>Defines minimum requirements for firefighting equipment, detection, and alarm systems.</li> <li>Prescribes requirements for lighting, marking, and sound signal aids to navigation.</li> <li>Prescribes requirements for construction and design standards and specifications for safety-related equipment and systems.</li> <li>Defines procedures for submission, review, and approval of construction drawings and specifications for DWPs.</li> </ul>
46 CFR Part 38 - USCG	<ul style="list-style-type: none"> <li>Specifies design and construction requirements for the transportation of liquefied or compressed gases whose primary hazard is one of flammability.</li> </ul>
46 CFR Part 153 - USCG	<ul style="list-style-type: none"> <li>Specifies the design and construction requirements for ships transporting and storing bulk liquid, liquefied gas, or compressed gas hazardous materials.</li> </ul>
Federal Coastal Zone Management Act Section 307(c)(3)(A) - <i>National Oceanic and Atmospheric Administration, Department of Commerce (also see State, below)</i>	<ul style="list-style-type: none"> <li>Requires protection against the spillage of crude oil, gas, petroleum, products, or hazardous substances in relation to any development or transportation of such materials.</li> <li>Requires provision of effective containment and cleanup facilities and procedures for accidental spills that do occur.</li> <li>Requires any applicant for a required Federal license or permit to conduct an activity, in or outside of the coastal zone, to provide to the licensing or permitting agency a certification that the proposed activity complies with the enforceable policies of the State's approved program and that such activity must be conducted in a manner consistent with the program. The applicant is required to furnish to the State or its designated agency a copy of the certification with all necessary information and data.</li> </ul>
Coast Guard and Maritime Transportation Act of 2006 (H.R. 889)	<ul style="list-style-type: none"> <li>Passed into law on July 12, 2006.</li> <li>States that the plan submitted with the DWP application must include the name of the registry for and the nationality or citizenship of officers and crew serving on board LNG carrier vessels.</li> </ul>
<b>State</b>	
Coastal Zone Management Act of 1972, as amended Section 307(c)(3)(A) - <i>California Coastal Commission (CCC)</i>	<ul style="list-style-type: none"> <li>Requires any applicant for a required Federal license or permit to conduct an activity, in or outside of the coastal zone, to provide to the licensing or permitting agency a certification that the proposed activity complies with the enforceable policies of the State's approved program and that such activity must be conducted in a manner consistent with the program. The applicant is required to furnish to the State or its designated agency a copy of the certification with all necessary information and data.</li> </ul>
- CSLC	<ul style="list-style-type: none"> <li>Provides technical assistance to the USCG in developing design criteria and standards for the FSRU and LNG carriers.</li> </ul>

**Notes:**

<sup>a</sup> This table is included here because of the overriding public concern regarding safety. A similar table of regulations is presented for each environmental resource discussed in Chapter 4.

<sup>b</sup> The USEPA has determined that Clean Air Act (CAA) Section 112(r), Risk Management Program 40 CFR Part 68 is not applicable.

Public safety impacts include the potential release of LNG due to an operational incident or natural cause at the FSRU or an LNG carrier. Sandia concurred that such incidents would not be expected to affect more than a single LNG tank, and the consequences of such an LNG release would not affect the general public. A high-energy collision of another vessel with the FSRU or an LNG carrier or an intentional attack could cause a rupture of the Moss tank(s) holding LNG, leading to a release of an unignited flammable vapor cloud that could extend beyond the 1,640-foot (500 m) radius safety zone around the FSRU, impact any members of the boating public in the identified potential impact area, and impact boats traveling in the Traffic Separation Scheme. This impact would remain significant after mitigation.

To reduce the likelihood and severity of a potential release, the Applicant would design, test, and operate the FSRU in accordance with applicable rules and regulations. These ensure that the Applicant would implement a specific, tested project design and execution process that is based on site-specific information, emphasizes safety, uses analytical tools to identify and quantify potential hazards so that they may be addressed, confirms the design in a model test basin, uses third parties for verification, and conducts a pre-startup review. Other offshore public safety measures include facility management certification to meet international safety standards, inspections and surveys by classification societies, and various marine traffic measures.

Potential public safety impacts associated with natural gas transportation by pipeline have been extensively evaluated in the past, based on decades of operational history for hundreds of thousands of miles of transmission pipelines. For this reason, the likelihood of an accident can be calculated, and the IRA did not analyze pipeline accidents.

Subsea pipelines could potentially be damaged due to fishing gear being hung up on the pipelines or a seismic event such as a subsea landslide. Mitigation measures that would increase the overall integrity of the offshore pipelines include meeting stringent pipeline design criteria for severe seismic events, procedures to identify any problem with subsea pipeline integrity, identification of areas where the new transmission pipelines may be subject to accelerated corrosion, and implementation of a cathodic protection system.

Onshore pipeline accidents rarely happen but do occur, and safeguards beyond those required by existing regulations, identified in Table ES-3, have been incorporated in the proposed Project to further reduce such risks. The Applicant or its designated representative would be responsible for security and monitoring measures for onshore pipelines and facilities as well as for the FSRU and offshore pipelines. Local fire and police and the California Highway Patrol currently provide emergency response for incidents involving existing onshore natural gas pipelines and other facilities in the area handling flammable gases or liquids; response parties would not change for the proposed onshore facilities.

1 Implementation of a pipeline integrity management program prior to Project operation  
 2 would increase public awareness and ensure that up-to-date information regarding  
 3 sensitive land uses would be maintained during the proposed Project. Additional  
 4 mitigation measures that would improve the safety of onshore pipelines include the  
 5 installation of additional mainline valves equipped with either remote valve controls or  
 6 automatic line break controls, which would limit the affected area from a potential  
 7 pipeline accident by allowing SoCalGas to automatically control the influx of gas into  
 8 sections of the pipeline system.

**Table ES-3 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding Pipelines**

Law/Regulation/Plan/ Agency	Key Elements and Thresholds; Applicable Permits
<b>Federal</b>	
Pipeline Safety Act of 1994 49 U.S.C. § 60101 et seq. - <i>Pipeline and Hazardous Materials Safety Administration Office of Pipeline Safety (PHMSA OPS)</i>	<ul style="list-style-type: none"> <li>Defines the framework for pipeline safety regulation in the U.S.</li> </ul>
Pipeline Safety Improvement Act of 2002, P.L. 107-355, 49 U.S.C. § 60101 et seq. - <i>PHMSA OPS, California State Lands Commission (CSLC), California Public Utilities Commission (CPUC)<sup>b</sup></i>	<ul style="list-style-type: none"> <li>Tightens Federal inspection and safety requirements to include mandatory inspections of oil and natural gas pipelines with a history of safety problems within five years of the bill's enactment, with all pipelines to be inspected within ten years. All pipelines will then be inspected at seven-year intervals.</li> <li>States that PHMSA OPS can order corrective actions, including physical inspection, testing, repair or replacement.</li> <li>Requires developing and implementing pipeline integrity management programs by pipeline operators, including identifying areas where risks may be greater due to the population density (High Consequence Areas) and implementing a series of actions to mitigate the potential hazards in these areas.</li> <li>Emphasizes the one-call notification system and encourages pipeline operators to voluntarily adopt and implement best practices for notification of leaks and ruptures.</li> <li>Requires the establishment of public education programs by pipeline operators to provide municipalities, schools, and other entities with information to prevent pipeline damage and to prepare for any pipeline emergencies, including the one-call notification system, possible hazards from accidental releases from a pipeline, and actions to take in the event of a release.</li> <li>Defines coordinated environmental review and permitting processes to expedite conducting any necessary pipeline repairs.</li> <li>Assesses maximum civil penalties against pipeline operators for violations of pipeline safety; standards have increased.</li> <li>Significantly strengthens the enforcement of pipeline safety laws and includes specific whistleblower protections for employees who provide information to the Federal government about pipeline safety.</li> <li>Mandates continued Federal pipeline safety research and development by the National Institute of Standards and Technology, U.S. Department of Transportation (USDOT), and Department of Energy.</li> </ul>

**Table ES-3 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding Pipelines<sup>a</sup>**

Law/Regulation/Plan/ Agency	Key Elements and Thresholds; Applicable Permits
49 Code of Federal Regulations (CFR) Part 190 - PHMSA OPS	<ul style="list-style-type: none"> <li>Describes availability of informal guidance and interpretive assistance for pipeline safety programs and procedures and establishes framework for inspections and for safety enforcement actions.</li> </ul>
49 CFR Part 191 - PHMSA OPS, CSLC, CPUC <sup>b</sup>	<ul style="list-style-type: none"> <li>Sets requirements for annual reports, incident reports, and safety-related condition reports.</li> </ul>
49 CFR Part 192 - PHMSA OPS, CSLC, CPUC <sup>b</sup>	<ul style="list-style-type: none"> <li>Sets minimum Federal safety standards for transportation of natural gas and other gases, including minimum materials properties such as yield strength; design formulas; standards for valves, flanges, fittings, supports and anchors; pipeline pressure controls; welding requirements; installation designs and limitations; corrosion control and monitoring; testing and inspection requirements; remedial and repair measures; environmental protection and safety requirements; procedural manuals for operations, maintenance, and emergencies; damage prevention programs; incident investigation; gas odorization; and requirements for abandonment or deactivation of facilities.</li> <li>Each pipeline operator must establish an emergency plan that includes procedures for minimizing the hazards in a natural gas pipeline emergency. Key elements of the plan include procedures for: <ul style="list-style-type: none"> <li>Receiving, identifying, and classifying emergency events, gas leaks, fires, explosions, and natural disasters;</li> <li>Establishing and maintaining communications with local fire, police, and public officials as well as coordinating emergency response;</li> <li>Making personnel, equipment, tools, and materials available at the scene of an emergency;</li> <li>Protecting people first and then property and making them safe from actual or potential hazards; and</li> <li>Implementing emergency shutdown of the system and safely restoring service.</li> </ul> </li> <li>Requires each operator to establish and maintain a liaison with the appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency and to coordinate mutual assistance.</li> <li>Subpart O describes Pipeline Integrity Management Programs for High Consequence Areas. Continuing public education programs must convey information about: <ul style="list-style-type: none"> <li>The use of a one-call notification system prior to excavation and other damage prevention activities;</li> <li>The possible hazards associated with unintended releases from the pipeline facility;</li> <li>The physical indications that such a release may have occurred;</li> <li>What steps should be taken for public safety in the event of a pipeline release; and</li> <li>How to report such an event.</li> </ul> </li> <li>The Final Rule on Operator Public Awareness Programs (May 2005) states under 192.616: (d) The operator's [public awareness] program must specifically include provisions to educate the public, appropriate government organizations, and persons engaged in excavation-related activities. (e) The program must include activities to advise affected</li> </ul>

**Table ES-3 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding Pipelines<sup>a</sup>**

Law/Regulation/Plan/Agency	Key Elements and Thresholds; Applicable Permits
	municipalities, school districts, businesses, and residents of pipeline facility locations. (f) The program and the media used must be as comprehensive as necessary to reach all areas in which the operator transports gas. (g) The program must be conducted in English and in other languages commonly understood by a significant number and concentration of the non-English speaking population in the operator's area.
49 CFR Part 199 - PHMSA OPS, CSLC, CPUC <sup>b</sup>	<ul style="list-style-type: none"> <li>Requires drug and alcohol testing for pipeline operators.</li> </ul>
<b>State</b>	
CPUC General Order 112-E State of California Rules Governing Design, Construction, Testing, Operation, and Maintenance of Gas Gathering, Transmission, and Distribution Piping Systems (CPUC 1996) - CPUC	<ul style="list-style-type: none"> <li>More stringent than USDOT requirements.</li> <li>Rule 30 "Transportation of Customer-Owned Gas," limits specific concentrations for a number of substances, including hydrogen sulfide, mercaptan, sulfur, and hazardous substances.</li> </ul>
CPUC 2006 Decision 06-09-039, Phase 2 Order Addressing Infrastructure Adequacy and Slack Capacity, Interconnection and Operational Balancing Agreements, an Infrastructure Working Group, Natural Gas Supply and Infrastructure Adequacy for Electric Generators, Natural Gas Quality, and Other Matters. - CPUC	<ul style="list-style-type: none"> <li>Assesses the sufficiency of natural gas supplies and infrastructure in California. The Commission issued a Phase I decision in September 2004 specifically resolving some matters related to the anticipated introduction of gas supplies derived through liquefied natural gas (LNG).</li> <li>Clarifies and expands policies related to receipt point expansion on the SoCalGas system.</li> <li>Finds that no party has identified a specific example of inadequate infrastructure affecting the delivery of gas over the next decade.</li> <li>Finds that the backbone transmission capacity on the SoCalGas systems is adequate and that the CPUC is comfortable with the proposed slack capacity ranges for backbone capacity as proposed by the utilities.</li> <li>Modifies SoCalGas' proposed revisions to its rules affecting open seasons related to local transmission capacity.</li> <li>Requires SoCalGas to upgrade its system when nominations exceed available capacity.</li> <li>Adopts rule changes to SoCalGas tariffs regarding gas quality. SoCalGas Rule 30 is revised to reflect a maximum Wobbe Index of 1385.</li> </ul>
<b>Local</b>	
- South Coast Air Quality Management District	<ul style="list-style-type: none"> <li>Issues specific rules for the sulfur content of natural gas.</li> </ul>
- Ventura County Air Pollution Control District	<ul style="list-style-type: none"> <li>Issues specific rules for the sulfur content of natural gas.</li> </ul>

**Notes:**

<sup>a</sup>This table is included here because of the overriding public concern regarding safety. A similar table of regulations is presented for each environmental resource discussed in Chapter 4.

<sup>b</sup>The USDOT, through PHMSA OPS, has statutory authority for pipeline safety in the U.S. The authority for the safety of intrastate utility-owned natural gas pipelines rests with the CPUC.

Pipeline safety regulations identify specific locales and areas where a release could have the most significant adverse consequences as High Consequence Area (HCAs). The Applicant would be required to treat the shore crossing as an HCA to improve the integrity of the pipeline at beach recreation areas. In addition, a safety marker would indicate the presence of buried natural gas pipeline at Ormond Beach, which would enable the public to report gas leaks; emergency response measures would be instituted, which would improve the timeliness and effectiveness of emergency response measures in the unlikely event of a potential pipeline accident; and areas subject to accelerated corrosion would be identified and a cathodic protection system would be implemented, which would increase the overall integrity of the pipelines, thereby reducing the potential for accidents.

A pipeline accident in an area of less robust housing, the manufactured home and mobile home parks located on Pidduck and Dufau Roads around MP 4.1, could result in a greater likelihood of injury, fatality, and property damage than other housing areas. To reduce the likelihood and impacts of a potential pipeline accident in this area, the Applicant would be required to treat this area as an HCA.

#### **4.3 MARINE TRAFFIC**

The FSRU mooring would be approximately 2 NM (2.3 miles or 3.7 km) from the edge of the nearest shipping lane. The subsea pipeline route would cross the Southbound and Northbound Coastwise Traffic Lanes, the Separation Zone, and parts of the Point Mugu Sea Range not normally used for missile impacts.

Marine activities associated with site preparation and installation of the FSRU, subsea pipelines, and shore crossing may increase maritime traffic and interfere with operations at the Point Mugu Sea Range.

To reduce impacts associated with increased maritime traffic, mitigation measures during construction would include using Notices to Mariners, guard boats, and safety vessels; having daily safety briefings; making and heeding Securite broadcasts; posting construction sign schedules in local ports and marinas; coordinating daily with the U.S. Navy; and avoiding as much as possible the waters of the Point Mugu Sea Range.

Impacts from facility operations include the following: (1) the transit of LNG carriers, tugboats, and supply/crew vessels to and from the FSRU would increase maritime traffic, (2) the presence of the FSRU and transiting LNG carriers could increase safety hazards, and (3) transiting LNG carriers may disrupt operations at the Point Mugu Sea Range or the Southern California Operations Area (SOCAL) Range Complex.

To decrease the potential of risk of vessel collision, the location of the FSRU would be placed on navigational charts and Project service vessels would use established routes to and from Port Hueneme. The Applicant would establish procedures for potential delays of the LNG carriers; the FSRU would monitor inbound and outbound LNG carriers; and routes to and from Port Hueneme would be evaluated. To decrease

potential naval operations interference, the Applicant would coordinate regularly with the USCG and the U.S. Navy and would provide them with the LNG carrier schedule. The Applicant also would make Securite broadcasts when LNG carriers are docking or undocking. In addition, the FSRU would have an Automatic Identification System, and a tugboat would patrol the safety zone around the FSRU. To reduce interference with operations at Port Hueneme during Project operations, all masters of Project tugboats would obtain an endorsement on their master's license and a pilot's license from the USCG and the Port of Hueneme Pilots Association before construction begins; apply for an U.S. Navy exemption to the requirement that operations cease in the Port of Hueneme channel; and coordinate at least 48 hours in advance with the Port of Hueneme to schedule tugboat arrivals and departures such that they do not conflict with commercial fish offloading operations.

#### 4.4 AESTHETICS

The presence of the FSRU would change the visual character of the ocean view for recreational boaters traveling several miles offshore, including visitors on whale watching and Channel Islands National Park boat trips. The presence of the FSRU would cause a long-term significant adverse change in the visual character of the open ocean for boaters who travel near it. There are no mitigation measures that would reduce this to a less than significant impact.

Night lighting used during pipeline construction and FSRU operations would be visible from the shore and to residents living in the foothills and higher elevation areas in Malibu and from the top of Anacapa Island, thereby altering the nighttime viewshed. The lights would be visible on the horizon and would not be distinguishable from vessel lights. Implementation of a construction/operations lighting control plan would limit the amount of light that would be perceived to an amount that is necessary for safety, and nighttime lighting impacts would be below the significance criteria.

From the shoreline, and particularly from higher elevations, the FSRU would be seen but would appear as a thickening on the horizon.

During construction, onshore staging areas and construction equipment would be visible to residents and travelers on City Image Corridors/Scenic Highways, but this would be a temporary impact that could be mitigated to a less than a significant level. In addition, the Applicant would be required to restore the landscape to preexisting conditions.

#### 4.5 AGRICULTURE AND SOIL RESOURCES

The onshore pipeline in the City of Oxnard and Ventura County would be constructed through a largely agricultural area. In contrast, the City of Santa Clarita has few agricultural areas and none of these areas would be affected by the installation of the onshore pipelines.

During construction, approximately 57 acres (23 hectares [ha]) of Farmland of Statewide Importance and 52 acres (21 ha) of Prime Farmland soil would be disturbed temporarily. The Applicant would compensate the landowner for the temporary loss of



the farmland and for any loss of productivity. To minimize any damage to agricultural fields, the Applicant would employ a weed management plan and salvage and replace topsoil. The Applicant also would try to protect substructures, such as drain tiles, and replace any that are damaged. During construction the Applicant could remove as many as 2,400 trees, although the actual number would likely be much less. This would be a potentially significant impact. The Applicant would replant small orchard trees and minimize the number of mature orchard trees removed during final design. The expansion of the Center Road Valve Station would result in the permanent loss of approximately 0.1 acre (0.04 ha) of Prime Farmland soils.

Potential impacts of construction include increased compaction of the soil, reduced fertility due to soil mixing, poor revegetation, and the introduction of noxious weeds. The Applicant would minimize soil mixing, reduced fertility, and the introduction of noxious weeds by salvaging and replacing topsoil and by implementing a weed management plan. The Applicant would implement a plan to suppress dust with potable water sources or water sources approved for discharge near agricultural uses.

#### 4.6 AIR QUALITY

Nearly all Project operations would take place in the Pacific Ocean outside of the boundaries of any designated Federal air quality control region or California county. A small portion of Project vessel operations would occur within Ventura County waters. FSRU operations would be subject to all Federal, State, and local regulations, as administered by the USEPA, applicable to the nearest onshore area, Ventura County. The USEPA determined that it would be most appropriate to have the FSRU regulated and permitted in the same manner as sources located on the Channel Islands that are part of Ventura County (as opposed to sources located in mainland Ventura County). The USEPA has made a preliminary determination that FSRU emissions are not subject to the provisions of the Ventura County Air Pollution Control District (VCAPCD) Rule 26.2, which outlines emission control technology and emission offset requirements under new source review. In September 2005, the VCAPCD staff concurred with the USEPA's interpretation of the applicability of VCAPCD Rule 26.2; however, in November 2006, the VCAPCD changed its position on the applicability of VCAPCD Rule 26.2.

Although the USEPA has proposed to issue a preconstruction permit, the USEPA has not yet made a final permit decision. Upon making a decision on the permit, the USEPA will make a final determination regarding the applicability of Rule 26.2. If the USEPA were to change or reverse this determination, additional air permitting requirements, including offsets, could apply. However, the lead agencies have confirmed that regardless of whether Rule 26.2 applies, all Project emissions have been properly quantified and disclosed in this document. Additionally, as has been stated throughout the document, any MARAD license issued would contain conditions requiring compliance with all applicable Federal, State, and local laws, which could include VCAPCD Rule 26.2, if the USEPA determines that it is applicable.

The USEPA has also determined that Federal Prevention of Significant Deterioration regulations would not apply to the Project since potential emissions are below major source thresholds.

Project construction activities in Ventura and Los Angeles counties would generate emissions that exceed quantitative thresholds for ozone precursors (NO<sub>x</sub> and ROCs) and carbon monoxide. The use of nonroad engine standards that are more stringent than normal, offshore construction equipment standards, ultra-low sulfur diesel and gasoline-fueled equipment that would meet these more stringent standards, and a construction emissions reduction plan would reduce carbon monoxide and nitrogen dioxide emissions. However, this impact would remain significant.

Onshore Project construction activities would generate particulate matter emissions that could cause or contribute to existing or projected violations of air quality standards. Fugitive Dust Controls and mitigation measures such as a construction fugitive dust plan, Tier 3 Nonroad Engine Standards, and a Construction Emissions Reduction Plan, would reduce impacts; however, the impact would remain significant.

Emissions of NO<sub>x</sub> and ROC generated from FSRU equipment could contribute to ambient ozone impacts in the areas located downwind of the Project. An emissions reduction program that includes retrofitting non-Project vessels in the area would mitigate ambient ozone concentrations to reduce impacts to below significance criteria.

Emissions of ozone precursors from offshore Project vessels operating in California Coastal Waters could contribute to ambient ozone impacts in the areas located downwind of the Project. The Applicant would reduce Project emissions through the use of natural gas in the engines of LNG carriers instead of the more typical diesel or heavy fuel oil and the use of air pollution control equipment reductions on the diesel-fueled tugboats and crew/supply vessel. In addition, the Applicant would prepare and maintain documentation that demonstrates implementation of the Applicant's emission reduction measures. The Applicant will continue to consult with the California Air Resources Board and the USEPA; at present, the Project would result in a considerable net increase of ozone precursors, a Class I impact.

#### **4.7 BIOLOGICAL RESOURCES – MARINE**

During offshore construction, a release of drilling fluids into the subtidal environment during HDB could temporarily increase turbidity, which could cause fish to avoid the construction area; however, a drilling fluid release monitoring plan would reduce this impact to below the significance criteria. Construction and operational activities could also affect marine biota through lighting and noise impacts. A lighting control plan, construction noise reduction measures, monitoring, avoidance, and efficient equipment usage would reduce noise and lighting impacts in the Project site and surrounding area to a level below the relevant significance criteria.

Noise from construction and operation vessels or equipment could affect marine mammal behavior. An acoustic monitoring mitigation plan, maintenance of helicopter

altitude, and efficient equipment usage to reduce noise would reduce impacts on marine mammals to a level below significance criteria. Additionally, avoiding the marine mammal migration season would reduce the numbers of certain marine mammals exposed to noise in the Project site during the construction activities.

Although rare, an accidental release of a significant amount of oil or fuel during construction or operation, or LNG spills, or a natural gas leak from subsea pipelines could cause morbidity or mortality of marine biota, including fish, invertebrates, seabirds, sea turtles, and marine mammals. Even with the implementation of mitigation measures, impacts on marine biological species from a large accidental release of LNG or fuel would remain significant.

Construction and operational vessels could collide with marine mammals or sea turtles resting on the ocean surface, resulting in injury or mortality. Avoiding offshore construction during gray whale migration season and initiation of marine mammal monitoring would reduce these impacts to a level below the significance criteria. In addition, marine mammals, sea turtles, and other special status species could become entangled in construction or operation equipment, causing injury or mortality. Potentially entangling material would be deployed only as long as necessary, and in the unlikely event that a marine mammal or sea turtle is entangled, the vessel operator would immediately notify authorities so that a rescue effort may be initiated. Implementation of these mitigation measures would reduce impacts on marine mammals to a level below the significance criteria.

#### **4.8 BIOLOGICAL RESOURCES – TERRESTRIAL**

The proposed Project is located within three biogeographical areas: the coastal zone, the Oxnard Plain, and the Santa Clarita Valley. The coastal zone supports habitat that consists of sandy beaches, wetlands, salt marsh, backdunes, and developed land. In the Oxnard Plain, the route crosses agricultural land, exotic tree rows, urban developed lands, non-native grasslands, southern foredunes, and exotic mixed riparian (water body-related) forest. The Line 225 Pipeline Loop pipeline routes traverse urban residential and industrial development, native coastal sage scrub, and southern cottonwood-willow riparian habitat at the Santa Clara River, the South Fork Santa Clara River, and San Francisquito Creek in the Santa Clarita Valley.

The terrestrial biological resource section incorporates biological data that were collected after publication of the October 2004 Draft EIS/EIR. The data include:

- Special status plant species and tree surveys;
- Wildlife surveys of Federal and State special status species, including birds, plants, and amphibians;
- Additional wetland delineation surveys; and
- The designation of critical habitat for the Pacific coast population of the western snowy plover in Ventura County along Ormond Beach.

Onshore HDB construction activities could cause habitat degradation for sensitive plant species or wetlands. The Applicant would implement erosion control measures during construction and spill containment/management and would select strategic locations for drilling fluids and cutting pits. These measures would avoid or reduce impacts to less than significant.

The Project could result in impacts on special status plants during construction, operation, and maintenance. Measures such as additional pre-construction plant surveys, a biological resources mitigation implementation and monitoring plan, an employee environmental awareness plan, biological monitoring, and avoidance of habitats would reduce impacts on rare and special status plants to a level below significance criteria.

Construction in wetlands or waters of the United States could remove vegetation, including special status species, disrupt the hydrology of the wetlands within and adjacent to the construction area, or alter the habitat for special status plant species. A spill response plan, avoidance of wetlands, and restoration would reduce these impacts.

#### **4.9 CULTURAL RESOURCES**

FSRU installation, offshore pipeline construction, and ship anchoring could disturb any historic or archaeological resources located on the seafloor or within seafloor sediments. An offshore survey identified fourteen sites within 328 feet (100 m) of the pipeline route that could contain objects of human origin. To ensure that none of these objects are damaged, the Applicant would conduct a more focused marine archaeological survey before pipeline installation begins to confirm the location of these objects and would use navigational tools to avoid the location of all significant marine archeological resources. There is no evidence of Native American watercraft in the offshore environment in the Project area.

The onshore and offshore aspects of the Project could impact undocumented resources that are of value to Native American culture and heritage, particularly the Ventura Chumash. Mitigation measures for this potential impact include avoidance of cultural sites and other items of Native American concern; Native American monitoring of Project-related activities; implementation of procedures specified in the CEQA such as the Health and Safety Code and the Public Resources Code if human remains are discovered in the Project area; and relocating and replanting grasses of Native American concern.

Ground-disturbing activities, including trench excavation, pre-construction ditching, grading, horizontal boring, and HDB and horizontal directional drilling (HDD) activities also could impact previously unknown onshore archaeological resources that have not yet been documented.

A pedestrian survey of the onshore pipeline routes was completed in 2005. Before onshore construction would begin, the Applicant would employ a qualified archaeologist to conduct a pre-construction pedestrian survey over any segments of the route that

have not already been surveyed. After onshore construction is initiated, mitigation measures would include having a qualified archaeologist monitor all construction within 328 feet (100 m) of onshore archaeological sites and areas with high potential for the occurrence of sites buried under alluvium, including the shoreline crossing. If sites were identified during construction, the monitor could stop construction and evaluate the resource to determine the next course of action. The Applicant has developed and would implement an Unanticipated Discovery Plan. The plan provides procedures to be undertaken for treatment of discovery of remains.

#### **4.10 ENERGY AND MINERAL RESOURCES**

The proposed Project does not cross any known aggregate or other onshore mineral resource locations, although a number of oil and gas leases are located in the vicinity of the proposed and alternate onshore pipeline routes. Given that the proposed onshore pipeline routes are generally located in existing ROWs and that there is an existing moratorium on developing new offshore oil and gas resources in the Project area, any additional development of these resources (if the moratorium were lifted and/or litigation ceased) would likely implement directional drilling techniques. Thus, no significant impacts on mineral resources from the proposed Project were identified.

The Project would deliver an annual average of 800 million cubic feet (22.7 million cubic meters) per day of natural gas to Southern California. Therefore, within the context of the California Energy Action Plan, the Project would have a beneficial impact on local and regional energy supplies.

#### **4.11 GEOLOGIC HAZARDS**

The proposed Project would be located in the Ventura and Santa Monica Basins. Several active or potentially active faults are located within the Project area, but few are crossed by the proposed pipelines. Geologic hazards such as seismicity, i.e., active faults, earthquakes/ground shaking, and soil liquefaction, slope instability (landslides), subsidence, flash floods, and debris flows could threaten the integrity of the pipeline facilities onshore and offshore but would be taken into account in establishing the final design criteria for the pipelines.

The proposed Project pipeline routes would likely cross several buried faults both onshore and offshore in this seismically active area. Seismic events such as ground shaking or mass movement could damage the pipelines or other facilities. The pipelines and aboveground facilities would be designed and constructed in accordance with Federal and State standards and guidelines to reduce the potential impacts on pipeline integrity from these hazards. Except near shore, the Applicant would install the offshore pipelines directly on the seabed surface to allow enhanced flexibility to help it withstand movement caused by fault rupture.

The Applicant has prepared a series of geotechnical studies that have been incorporated in this analysis. The Applicant would also conduct site-specific seismic hazard studies prior to construction and evaluate suspected active fault crossings to

accurately define the fault plane location, orientation, direction of anticipated offset, and the magnitude of the anticipated offset at the fault locations. In the final design, the Applicant would evaluate the following parameters: larger trench, engineered backfill, thicker wall pipe, shutoff valves placed on either side of fault crossings, and telemetric control for final pipeline design. The Applicant would also apply proper seismic design to avoid damage to Project components during ground shaking.

Impacts from trenching, HDB, or HDD would include temporary changes in the natural topography that might increase the potential for erosion or differential compaction due to trenching and grading activities. All methods used to bury the pipelines would temporarily disturb the subsurface and could provide a preferential path for drilling fluids. To minimize these impacts, the pipeline routes have been selected to avoid areas of potential erosion and steep slopes. After construction, the Applicant would restore the natural elevation and drainage conditions as closely as possible to preexisting conditions following industry standard practices for backfilling, compacting, regrading, and revegetation.

There is little risk of damage from tsunamis to facilities located in deep water, but significant erosion, high current, and wave forces could occur in shallow water near the shore. The pipeline at the shore crossing would be buried a minimum of 50 feet (15.2 m) below sea level, which would minimize potential damage from tsunamis.

Onshore pipeline installation could permanently disturb or destroy paleontological resources. To prevent this, a qualified paleontologist would be required to monitor excavations in suspected areas and would be responsible for properly excavating, collecting, and cataloging any paleontological specimens discovered.

#### **4.12 HAZARDOUS MATERIALS**

The proposed Project would transport, store, use, and dispose of hazardous materials and wastes. The storage and use of hazardous materials, as well as the storage and disposal of hazardous wastes, is regulated by the USEPA and State and local regulatory agencies. Plans that would be prepared and implemented include Spill Prevention, Control, and Countermeasures Plans for onshore and nearshore activities; oil spill contingency plans for oil transport-related facilities; a Facility Response Plan for the FSRU; site-specific health and safety plans; and a Hazard Communication Plan. Some locations along the proposed pipeline routes are known or suspected to have soil or groundwater contamination from previous or existing activities unrelated to the proposed Project. Construction crews could encounter contaminated soil or water during clearing, trenching, or drilling operations. The Whittaker-Bermite site along the proposed Line 225 Pipeline Loop ROW is currently undergoing groundwater and soil cleanup; the Applicant would be required to coordinate with the California Department of Toxic Substances Control (DTSC) to determine whether additional surveys or screening-level sampling may be warranted in areas to be disturbed by pipeline construction.

Activities associated with site preparation, construction, and drilling, as well as operations and maintenance activities, could result in an accidental spill of hazardous materials or oil and exposure of workers or the public. In addition to complying with Federal and State regulations, the Applicant would maintain equipment in operating condition to reduce the likelihood of fuel or oil line breaks and leakage and prepare a detailed hazardous material contingency plan that outlines how the contaminated soil and/or groundwater would be handled and disposed, as well as providing training for personnel.

In areas where the proposed onshore pipeline alignments diverge from existing ROWs, the Applicant or its designated representative would conduct surveys to identify potential areas of soil and/or groundwater contamination.

#### **4.13 LAND USE**

The onshore pipelines would be installed mostly in existing roadways, on road shoulders, or in easements. The proposed Center Road pipeline route would traverse parts of the City of Oxnard and unincorporated areas of Ventura County. In Oxnard and Ventura County, the proposed Project would traverse primarily (90 percent) agricultural fields and open space with some residential and commercial land uses. In Santa Clarita, the proposed pipeline route would traverse open space and residential, industrial, and commercial areas. The proposed pipelines would not cross any sensitive land uses such as schools or hospitals and none are directly adjacent to the proposed pipelines. The proposed pipelines are adjacent to several potential new school sites but would not cross any of them. If, as part of the Ormond Beach Specific Plan, McWane Boulevard is approved and constructed prior to the construction of the Center Road Pipeline, the Applicant would locate the Center Road Pipeline within the ROW for McWane Boulevard, thus avoiding potential conflicts related to a potential future elementary school site.

Surface facilities would be constructed on or immediately adjacent to the Reliant Energy Ormond Beach Generating Station or SoCalGas property. During installation of the onshore pipeline, access to business and residences would be maintained, although traffic congestion may affect roadways along the route.

The Channel Islands National Marine Sanctuary (CINMS) Draft Management Plan/Draft EIS (DMP/DEIS) was released in May 2006. The DMP includes a boundary evaluation action plan and a marine zoning action plan describing the Sanctuary's separate and future planned environmental review processes to address these matters. The DMP/DEIS does not propose a sanctuary boundary expansion but calls for a process that will lead to a decision regarding the sanctuary boundary in the future. The proposed regulations addressed in the DMP/DEIS would apply only to the existing CINMS boundaries. The CINMS DMP/DEIS discusses the Cabrillo Port Project's potential impacts on the CINMS, including cumulative impacts. It lists the Cabrillo Port Project as an example of a related study or process and describes LNG generally as having potential impacts on air quality, the marine environment, visual resources, and

1 traffic, and the consequences of an LNG spill, but it does not discuss the specific  
2 impacts of the proposed Project.

3 From approximately milepost (MP) 0.0 to MP 0.2, the proposed Project route is located  
4 within the Ormond Beach Coastal Zone Area. The Oxnard Coastal Land Use Plan  
5 governs land uses in this zone. The policy for the Ormond Beach area encourages  
6 industrial and recreational uses while protecting beaches and wetlands. Part of the  
7 area is designated specifically for energy. The Center Road Pipeline is proposed to be  
8 installed in the Edison Road ROW as allowed by the franchise agreement between  
9 SoCalGas and the City of Oxnard. The California Coastal Conservancy proposes to  
10 acquire for wetland restoration additional land that is currently within the Ormond Beach  
11 Specific Plan Area. The restoration plan would potentially include the creation of a  
12 lagoon around the Reliant Energy Ormond Beach Station by restoring water flow.  
13 Implementation of this plan would require that the pipeline be installed at a depth of  
14 about 20 feet. However, because the restoration plan is not approved, the California  
15 Coastal Conservancy does not own the property, and the franchise agreement allows  
16 the placement of pipelines within existing road ROWs, there would be no impact at the  
17 present time.

18 The Coastal Zone Management Act (CZMA) states that no Federal license that affects  
19 the coastal zone can be issued until the California Coastal Commission (CCC) concurs  
20 with a consistency certification prepared by the Applicant (CZMA § 307(c)(3)(A); 15  
21 CFR §§ 930.53(d) and 930.54(d)). The Applicant has initiated the consistency  
22 determination by submitting draft information in October 2006. Discussions are  
23 currently being held between the Applicant and California coastal zone management  
24 staff regarding the level of additional information and timing of the request for  
25 consistency. Because a consistency certification must include detailed information  
26 regarding the Project's effects on coastal resources, the CCC has asked that the  
27 consistency certification for this Project be submitted for review once the Final EIS/EIR  
28 is completed. The CCC staff is monitoring the progress of this Project and consulting  
29 with the lead agencies and the Applicant on technical studies to facilitate their review.  
30 Therefore, the draft consistency certification would not be formally submitted until the  
31 Final EIS/EIR is complete.

32 Properties would be encumbered by new permanent ROW easements, and the  
33 Applicant would compensate landowners for use of these easements. Construction  
34 may cause temporary disturbances or nuisances to nearby residents and businesses or  
35 to special land uses. The Applicant or its designated representative would minimize  
36 disruption in residential and business areas during construction by restricting activity to  
37 daytime hours, installing safety fencing, minimizing the time that trenches may remain  
38 open, and maintaining minimum distances between construction areas and residences.  
39 In addition, the Applicant or its designated representative would coordinate with utility  
40 providers to minimize potential conflicts with utility maintenance and construction  
41 activities.



#### 4.14 NOISE AND VIBRATION

Noise would be generated during the offshore and onshore construction and the offshore operations of the Project. Existing offshore noise includes noise generated by commercial, recreational, and U.S. Navy vessel traffic. Noise generated onshore is location-specific but includes ocean, bird, vehicle, agricultural, and industrially generated noise.

Offshore construction noise would be temporary, and the Applicant has proposed to operate construction equipment on an as-needed basis and would ensure that engine covers and mufflers are in place and in good working condition.

Temporary noise and vibration generated during construction at the shore crossings and onshore could temporarily increase noise and vibration levels for sensitive receptors. Noise levels could exceed local noise ordinances or permit conditions. Vibration levels would exceed significance criteria. The Applicant has incorporated construction noise-reduction measures that would reduce noise levels and vibration; however, some residents and businesses would still be subject to a short-term significant impact from construction noise and vibration.

During offshore operations, equipment on the FSRU would generate airborne noise, as would the vessel traffic to and from the FSRU. The noise analysis of the FSRU operation indicates that noise generated by the FSRU would be noticeable at 3.1 miles (5 km) from the FSRU, and at 0.6 mile (0.97 km) would interfere with conversation. Boaters transiting the Area to be Avoided would potentially notice the noise levels, and impacts on these boaters would exceed the significance criteria; however, the impact would be transitory as boaters leave the area.

Temporary noise generated by support vessels during offshore operations, such as LNG carriers, crew/supply vessels, and helicopters, could temporarily increase noise levels for sensitive receptors, such as recreational boaters and fishers. To minimize these impacts, the Applicant would operate tugboats, the crew/supply vessel, and helicopters during daytime hours, except during emergencies; however, marine traffic transiting near the Project area would still be subject to a short-term significant impact from the vessel/helicopter noise.

No known noise would be generated from onshore operations. Noise could be generated from repair and maintenance activities. The noise generated would be temporary and would be similar to the levels generated during construction.

#### 4.15 RECREATION

Offshore recreation in the Project area includes boating, sportfishing, sailing, whale-watching, and surfing and is important to the local economy. The presence of the Project would alter the experience of recreational boaters who travel miles offshore, including visitors on whale-watching trips and other visitors to the Channel Islands National Park. Some boaters are accustomed to the large ships traveling nearby in the shipping lanes. However, because some recreational boaters would view the presence

of the FSRU as a significant adverse visual impact on the seascape, there would be a long-term significant impact on the recreational resource.

Project activities could restrict recreational fishing because of the creation of a 1,640-foot (500 m) safety zone extending from the stern of the FSRU. However, because the safety zone around the FSRU would be small with respect to the entire area available for sportfishing and because most recreational fishing occurs much closer to shore, these activities would not significantly reduce the regional sportfishing resource. Offshore construction would temporarily restrict recreational fishing in the immediate construction area.

The shore crossing would cross beneath Ormond Beach and therefore beach access would not be affected. The Project is within 3 miles (4.8 km) of three beaches or beach parks. Neither the Center Road nor the Line 225 pipelines would cross public parks, but several recreational facilities are located nearby. Contractor yards would be located at least 1 mile from any recreation area to reduce potential of interference/disturbance with the recreational area. Construction activities along the South Fork of the Santa Clara River would temporarily close multi-use trails. To reduce the impact of the trail closure, the Applicant or its designated representative would restore the trail to its preexisting condition and post trail closure signage and information during construction and restoration.

#### **4.16 SOCIOECONOMICS**

Social and economic factors in the Project areas are population, housing, employment, public services, tax revenues, tourism, and commercial fishing. Potential impacts on housing, employment, public services, and tax revenues may result from the influx of construction workers during installation of the pipelines, and changes to services and real property may be a result of the pipelines in the ROWs after installation.

An estimated 368 persons, including workers and their families, would migrate to the area during Project construction and would need housing for at least the nine-month onshore construction period. The housing stock, including hotel/motel rooms and camping sites, appears sufficient to accommodate the temporary influx of workers and their dependents during the construction phase, so there would be no significant effect on the local housing market.

In real estate transactions, utility ROWs and easements are described and disclosed in a title report to the purchasing parties. Property taxes are based on the value of the real property, whether land, improved property, or an easement. As such, a pipeline easement on a property may affect the value of a property and therefore may also affect taxes.

Offshore, potential impacts from the proposed Project on commercial fishers could result from pipeline interference with trawling gear, temporary restricted areas around offshore construction areas, and the permanent safety zone surrounding the FSRU. Commercial trawl fishing grounds are present along a 9.9-mile (15.9 km) section of the

1 offshore pipelines. Fishermen would not be excluded from this area, but bottom  
2 trawlers would likely need to raise their gear to cross the pipelines. Burial of the  
3 pipeline using HDB near shore would eliminate long-term interference by the pipeline  
4 with commercial trawl fishing gear. However, trawl fishers may prefer to fish elsewhere  
5 to avoid the potential loss of gear.

6 Vessels would be temporary excluded from fishing grounds directly along the pipeline  
7 route during construction, but the overall impact on fishing from exclusion of fishing in  
8 the Project area, and thus increased pressure in other areas, would not be significant.  
9 However, if there is a complaint by a fisher related to Project impacts, the Applicant  
10 would negotiate mitigation using guidance from Joint Oil/Fisheries Committee guidelines  
11 for lost or damaged gear. The Applicant would be required to comply with a mutually  
12 agreed-upon settlement between itself and the injured party.

13 Vessels would be permanently restricted from the 1,640-foot (500 m) safety zone  
14 surrounding the FSRU. The safety zone would be small compared to overall fishing  
15 grounds in this portion of Southern California; therefore, this would not be considered a  
16 significant impact.

17 Construction of the Project would include mitigation measures to reduce or avoid such  
18 impacts, including working with land and business owners to maintain access during  
19 construction and minimizing disruption to traffic and compensation for lost fishing gear.

#### 20 **4.17 TRANSPORTATION**

21 The proposed routes for most of the onshore pipelines are in or near existing roadways  
22 or ROWs; however, bike routes and traffic lanes would be crossed. No airports would  
23 be affected by the proposed Project.

24 Given that construction would occur primarily in existing ROWs, impacts on the local  
25 transportation infrastructure would be expected to include reductions in the availability  
26 of on-street parking, closures of some bike routes, delays on transit and railway routes,  
27 traffic lane closures, and temporary increases in traffic levels on roadways and at  
28 intersections along or near the pipeline routes. Before construction, the Applicant would  
29 develop a traffic control plan for review and approval by the lead agencies that would  
30 address actions and work scheduling to minimize disruption of all modes of  
31 transportation—pedestrian, bicycle, private motor vehicle, bus/transit, and rail—in the  
32 Project area. This plan would also identify actions to be taken to limit and repair  
33 potential damage to existing roadways from heavy construction equipment and to limit  
34 the amount of mud, grit, and sand carried on dirty equipment or construction vehicle  
35 tires from the Project areas onto public roadways, railway tracks, or bike routes.

36 During operations, the Project would not result in any impacts on the onshore  
37 transportation infrastructure. No roads would require improvement to allow equipment  
38 to access the Project. The Project would not disrupt access to or from farms,  
39 residences, or businesses adjacent to the pipeline. The Applicant would provide off-

street parking for FSRU crews and therefore would not permanently reduce the supply of available parking.

#### 4.18 WATER QUALITY AND SEDIMENTS

The FSRU and offshore pipeline lie within the Southern California Bight. The sediment and water quality of the Southern California Bight has been extensively studied. Water quality parameters vary according to location and depth. The proposed Project onshore pipeline routes would cross surface water bodies in both Oxnard/Ventura County and Santa Clarita.

Discharges from the FSRU would be regulated by a National Pollutant Discharge Elimination System (NPDES) permit, which would ensure that discharges are within established water quality thresholds. The Applicant filed an addendum to its application for an NPDES permit on September 21, 2006; approval is pending as of December 12, 2006. In addition, NPDES permits would be required from the Los Angeles Regional Water Quality Control Board for onshore construction-related activities that require discharges—such as storm water, hydrostatic test water, and groundwater—from dewatering activities, and for operation activities such as the new metering station.

The Applicant is responsible for developing and implementing a Facility Response Plan for the FSRU, Spill Prevention, Control, and Countermeasures Plans for onshore and nearshore Project activities, and oil spill contingency plans for a Project construction vessel and for the FSRU.

Implementation of the USCG-approved Vessel Oil Pollution Contingency Plan would reduce the impact of an accidental discharge of petroleum from vessels during construction. However, a large accidental release of diesel fuel to marine waters would violate Federal and State water quality standards or objectives. Even with the implementation of the Facility Oil Pollution Contingency Plan for the FSRU or the Vessel Oil Pollution Contingency Plan for the pipelaying vessel, impacts on water quality from an accidental release of diesel fuel would remain significant.

State law prohibits the discharge of black water, gray water, and bilge water in State waters; however, gray water and treated black water can be discharged in Federal waters. Project construction and support vessels would follow the applicable marine and environmental regulations regarding black and gray water handling and disposal. To reduce the potential impacts of these discharges to ambient water quality, all wastewater discharges from Project construction and support vessels shall be conducted when vessels are under way. Any accidental discharges would be temporary and unlikely to adversely affect coastal waters or the shoreline.

Accidental releases of drilling fluids at the shore during the shore crossing construction could degrade surface water or groundwater quality for the short term. The Applicant would implement a Drilling Fluid Release Monitoring Plan to minimize the potential for releases of drilling fluids, to properly clean up drilling fluids in the event of a release, and notify appropriate agencies should a release occur.

During operations, the FSRU could accidentally release small amounts of contaminants, including bilge water, detergents, or human waste, to marine waters in excess of water quality standards. As discussed above, State law prohibits the discharge of black water, gray water, and bilge water in State waters; however, gray water and treated black water can be discharged in Federal waters. To reduce the potential impacts of these discharges to ambient water quality, all wastewater discharges from Project support vessels shall be conducted when vessels are under way.

Although the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) would not be applicable to the Project, as a condition of the draft NPDES permit, the USEPA has stipulated a limit on the maximum temperature for the cooling water discharge that is consistent with the Thermal Plan. The Applicant has updated the design of the seawater cooling system discharge to comply with this stipulation.

The proposed onshore pipeline alignments would cross creeks, agricultural drainages, and flood control channels. Impacts associated with crossing these surface waters may include erosion and sedimentation. Additional mitigation measures to reduce associated impacts would include implementation of an erosion control plan outlining best management practices for control of erosion and sedimentation, especially at stream crossings, and monitoring of activities at stream crossings.

During onshore operations, releases of petroleum or other contaminants during maintenance activities could temporarily degrade surface water quality. To avoid such impacts, the Applicant would implement a spill response plan and use best management practices such as silt fencing and straw bales placed at creek crossings for major maintenance activities that could result in spills that could enter surface water pathways.

#### **4.19 ENVIRONMENTAL JUSTICE**

Census data show that a larger percentage of Hispanics or Latinos reside along the proposed Center Road Pipeline and its alternate routes than in Ventura County and the State in total; thus, there is a potential for disproportionate adverse impacts on minority communities. The Hispanic or Latino population along the proposed Center Road Pipeline is 58 percent; along Alternative 1 it is 82 percent; along Alternative 2 it is 55 percent; and along Alternative 3 it is 59 percent. In addition, the poverty rate among the population along the Center Road Pipeline route exceeds the poverty rate in Ventura County.

Along the Line 225 Pipeline Loop and its alternatives, the census data indicate that no minority or low-income community is present that warrants a more detailed analysis.

Adverse impacts associated with construction of the onshore pipelines would occur along the entire pipeline route and in areas with a variety of socioeconomic backgrounds and thus are not considered to adversely affect minority or low-income

populations disproportionately. Significant adverse impacts associated with Project operations, however, are considered in this analysis.

The manufactured home and mobile home parks located on Pidduck and Dufau Roads near MP 4.1 of the proposed Center Road Pipeline route were identified as areas where a significant impact could disproportionately affect minority or low-income residents because the housing is less robust. The segment of the proposed pipeline in proximity to these sites is about 0.2 mile in length. This constitutes less than 1 percent of the total length of the 14.7-mile (23.7 km) pipeline.

The Applicant would construct the pipeline to meet Class 3 standards. In addition, public safety mitigation measures that would reduce potential safety impacts include instituting a pipeline integrity management program, which would confirm all potential HCAs and implement a public education program before beginning pipeline operations; installing additional mainline valves equipped with either remote valve controls or automatic line break controls along the pipeline; and defining the area near MP 4.1 as an HCA. These mitigation measures are intended to reduce potential risks by reducing the potential frequency or likelihood of an accident and by reducing the potential consequences should an accident occur.

The above design and engineering requirements have been developed to reduce the risks of a potential release of natural gas along the entirety of the route. However, the requirement that the area in the vicinity of MP 4.1 be treated as a HCA is in specific consideration of the type of housing and outdoor activity levels known to exist in the vicinity of MP 4.1. The intent of the additional site-specific requirements for additional inspection, testing, maintenance, reporting, and public education requirements for the operation of this pipeline segment is to further reduce the potential risks related to the proposed pipeline in the area of MP 4.1 as compared with the remainder of the route.

With the implementation of these measures, in conjunction with the additional requirements put in place with treatment of the vicinity as an HCA, the presence and operation of the proposed pipeline, as modified, would not constitute a significant environmental justice impact.

#### **4.20 CUMULATIVE ANALYSIS**

In accordance with NEPA and the CEQA, this analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future projects within the Project area that were identified at the time of publication of the Notice of Intent/Notice of Preparation in March 2004 and updated in December 2005. Projects identified in Section 4.20 that would result in cumulative impacts in combination with the proposed Cabrillo Port project are summarized below.

Northern Star is proposing to use Platform Grace, an existing oil and gas platform, as an LNG import and regasification facility named Clearwater Port. This facility would be approximately 29 NM (33 miles or 54 km) from the proposed Cabrillo Port FSRU. Woodside Energy submitted an application for the OceanWay LNG ship mooring facility

22 miles offshore of Los Angeles in August 2006. As of December 2006, an environmental evaluation has not been initiated for this proposed project, which is approximately 14.7 NM (16.9 miles or 27.2 km) away from the proposed Cabrillo Port FSRU.

The potential for cumulative public safety impacts from simultaneous incidents involving Cabrillo Port, Clearwater Port, and OceanWay would be limited to intentional acts. Although the probability of simultaneous offshore incidents is very low, such incidents could result in serious injury or fatality to members of the general public.

Another proposed energy project is a 27-acre (10.9 ha) onshore LNG receiving terminal at the Port of Long Beach, proposed by Sound Energy Solutions (SES). The proposed SES project is not in the vicinity of the proposed Cabrillo Port Project; therefore, the only potential cumulative impact associated with this facility and the proposed Project would be a regional increase in vessel traffic; however, the increase in local vessel traffic for the SES project would be concentrated at the Port of Long Beach, and the increase in vessel traffic for the Cabrillo Port Project would be trans-Pacific and between the FSRU and the Port of Hueneme. Proposed expansions of the Port of Hueneme and the Port of Long Beach would also result in a net increase in vessel traffic.

If Clearwater Port and OceanWay were licensed, vessel traffic in the area would increase substantially, but temporarily, during the construction phase and would increase on a regular basis during operations involving the transit of LNG carriers and support vessels, with impacts comparable to the proposed Project. If the proposed Project and either OceanWay or Clearwater Port were to be constructed simultaneously, then there would be short-term increases in marine traffic in the region. The distance between the proposed Project, OceanWay, and Clearwater Port would be 14.7 NM (16.9 mi., 27.2 km) and 28.9 NM (33.3 miles or 53.5 km), respectively. The distance between shore crossing for the proposed offshore pipeline and the Clearwater Port pipelines would be approximately 7 miles (11.3 km) and to OceanWay's shore crossing would be approximately 43 miles (69.5 km); therefore, increased vessel traffic would be in discrete areas.

The offshore pipelines from the three deepwater ports would be in separate and distinct pipeline corridors, and no cumulative public safety effects would be anticipated from the operation of the offshore pipelines, based on their proposed locations.

Onshore, the pipelines from Cabrillo Port and Clearwater Port would be in separate pipeline corridors, except potentially within approximately 2 miles (3.2 km) of the Center Road Valve Station. The onshore pipelines for the OceanWay project would be more than 43 miles (69.5 km) from the proposed Center Road Pipeline route. The potential for cumulative impacts due to routing additional pipelines from the Clearwater Port project within the same corridor is limited to the potential consequences from: (1) intentional damage to one or more natural gas pipelines located close to one another, and (2) initiation of more than one event at different locations along the pipelines. These cumulative impacts would be similar for all the onshore pipeline alternatives in Oxnard except the Gonzales Road Alternative. The Gonzales Road Alternative and the

Clearwater Port onshore pipelines could be within the same corridor for much of their routes.

Cabrillo Port, in combination with either or both Clearwater Port or OceanWay, would result in significant cumulative impacts on offshore recreation and regional aesthetics and in short-term offshore noise. In addition, proposed expansions of the Port of Hueneme and the Port of Long Beach would add to cumulative short-term noise impacts.

Potentially significant cumulative regional air quality impacts due to the Clearwater Port and OceanWay facilities and the Project can be expected; however, these cumulative impacts are difficult to determine because an air analysis comparable to that done for the proposed Project has not been performed for the Clearwater Port and OceanWay projects. The Project would generate emissions of greenhouse gases that would be insignificant alone, but could exacerbate, in combination with existing greenhouse gases, global warming effects.

Clearwater Port would have agricultural effects similar to those of the proposed Project. The onshore pipeline would be installed in some agricultural lands, but these areas would only be disturbed temporarily. Conversion of soils classified as either Prime Farmland or Soils of Statewide Importance is considered a significant impact; therefore, the combined impacts of the Project with the potential of conversion of these types of soils with the Clearwater Port project would have a significant cumulative impact on agricultural soils.

## 5.0 OTHER NEPA/CEQA CONSIDERATIONS

Both NEPA and the CEQA require analysis of significant irreversible changes, including unavoidable impacts. Twenty proposed Project impacts have been identified as significant impacts, considered major, permanent, long-term, or short-term impacts under NEPA, and Class I impacts under the CEQA. Due to the significant unavoidable impacts that would remain after mitigation is applied, approval of the Project is subject to a Statement of Overriding Considerations under the CEQA.

## 6.0 CONCLUSION

Mitigation measures have been developed or recommended to avoid, minimize, or compensate for adverse impacts on each resource; however, a number of adverse effects would remain significant and unavoidable.

Significant and unavoidable offshore impacts during Project operations would be potential public safety impacts from a high-energy marine collision or damage to subsea pipelines; noise impacts to marine animals; marine biology, air quality, and water quality impacts from a significant spill or LNG release from the FSRU or offshore pipelines; and aesthetic, noise, and recreational impacts for boaters traveling near Cabrillo Port. Significant and unavoidable offshore impacts during construction would be noise impacts, and marine biology and water quality impacts that could result from a significant spill or LNG release.



Significant and unavoidable onshore impacts during Project operations would be public safety impacts resulting from damage to onshore pipelines, and the permanent loss of 0.1 acre of agricultural land in Ventura County. During construction, significant onshore impacts would be air quality impacts due to increases in criteria pollutants in a non-attainment area and increases in particulate emissions in an area where State ambient air quality standards are already in violation; and noise and vibration impacts near Project construction sites.

## **GROWTH-INDUCING IMPACTS**

The supply of additional natural gas to Southern California would not likely induce growth in the region but would serve both the existing and anticipated demand for natural gas, as indicated by the CEC. Cabrillo Port would not be the sole supplier of natural gas to the region. Regional development or infrastructure growth would occur with or without this Project.

## **ENVIRONMENTALLY PREFERABLE ALTERNATIVE/ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

The Council on Environmental Quality (CEQ) regulations for implementing NEPA require that the Record of Decision (ROD) specify “the alternative or alternatives which were considered to be environmentally preferable” (40 C.F.R. § 1505.2(b)). As defined by the CEQ, the environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA’s Section 101. Under the Deepwater Port Act, the Maritime Administrator is the decision-making authority who issues a ROD to approve, approve with conditions, or deny a license application for a deepwater port. Because of MARAD’s authority, the Final EIS/EIR does not identify an environmentally preferable alternative; to do so would be pre-decisional. Prior to issuing a license the Administrator will review and analyze all of the relevant information pertaining to the license application, as required under the DWP. If the license is approved, or approved with conditions, the Administrator will indicate the agency’s preferred alternative in the ROD.

Section 15126.6(e)(2) of the State CEQA Guidelines provides in part, “If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.” If the proposed Project were not approved, the significant adverse environmental impacts identified in this document would not occur. For the immediate future, the status quo would be maintained or modified as discussed in Section 3.4.1, and therefore, No Action would likely be environmentally superior, at least temporarily.

It is unclear, however, based on the information available, whether the “No Action Alternative” would remain the environmentally superior alternative. According to the California Energy Commission, new sources of energy will be required to meet the State’s growing demand. It is therefore reasonable to assume that if the proposed Project were not approved (i.e., if the No Action Alternative is selected), the State’s

demand will be met by other energy development projects both in the short-term and the long-term.

If an energy development project with fewer significant environmental impacts than the proposed Project were subsequently approved, the No Action Alternative would be, in hindsight, the environmentally superior alternative. Other energy development projects, including other offshore LNG or pipeline facilities, are discussed in Chapter 3, "Alternatives." Considering the uncertainty of other onshore and offshore LNG projects, other types of energy development projects, their timing, and their environmental impacts, it is not possible to determine with certainty whether the No Action Alternative is or would be the environmentally superior alternative. For comparison purposes, the environmental differences between the proposed Project and the other offshore alternative are summarized in Table ES-5 at the end of this Executive Summary.

## MAJOR CONCLUSIONS

The conclusions presented are those of the environmental staff of the USCG, MARAD, and the CSLC.

Impacts are classified using the four categories identified in Table ES-4. Both the CSLC and USCG criteria apply to the class definitions. For example, Class I impacts cannot be mitigated to a level below significance criteria. Potential impacts are identified by a bold letter-number designation, e.g., **Impact PS-1** in Section 4.2, "Public Safety: Hazards and Risk Analysis." In accordance with the State CEQA Guidelines § 15093, the CSLC and other State permitting agencies would have to make a Statement of Overriding Considerations addressing Class I impacts prior to approval of the Project.

Table ES-5 presents a summary of all Project impacts, Applicant measures, and mitigation measures.

**Table ES-4 Categories of Impacts**

Class Definition	CSLC Criteria	USCG Criteria
Class I	Significant adverse impact that remains significant after mitigation	Major, permanent, long-term, or short-term
Class II	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria	Minor, long-term
Class III	Adverse impact that does not meet or exceed an issue's significance criteria	Minor, short-term, or temporary
Class IV	Beneficial impact	Positive, may be major or minor, short- or long-term or permanent

**Table ES-5 Summary of Impacts and Mitigation Measures**

**Note:** Impact classes are defined in Table ES-4. Acronyms for each resource are defined at the end of Table ES-5. Many of the measures listed apply to more than one resource; however, each measure is described only once under its primary resource. For example, AM MT-3a, Patrol Safety Zone, applies to Impacts PS-1, PS-2, MT-3, MT-4, BioMar-6, and BioMar-8, but is described in full only under Impact MT-3.

Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>PUBLIC SAFETY [PS] (Section 4.2)</b>			
<b>FSRU or LNG Carrier</b>			
<p><b>Impact PS-1:</b> <i>Potential Minor Release of LNG due to Operational Incident or Natural Phenomena at the FSRU or an LNG Carrier</i></p> <p>An incident at the FSRU or LNG carrier due to human error, upsets, or equipment failures, or as a result of natural phenomena (severe wave conditions, high winds, etc.) could cause a release of LNG from the FSRU or an LNG carrier that would have a limited area of effect.</p>	CEQA Class II; NEPA minor adverse, long-term	<p><b>AM PS-1a. Applicant Engineering and Project Execution Process.</b> The Applicant would undertake—regardless of any less stringent regulatory requirements—the following steps to design, build, and operate the proposed Project:</p> <ol style="list-style-type: none"> <li>1. Prior to final internal Project funding, undertake a full Front End Engineering Design (FEED) exercise with a suitably qualified and experienced contractor under the management of an Applicant technical team. This would define the engineering requirements for the complete Project and identify sources for all remaining detailed information and data in order to be ready for internal Project sanction and final detailed engineering.</li> <li>2. Undertake a comprehensive offshore site survey to determine bathymetry, geology, and geotechnical characteristics of the area in and immediately around the locations of each element of the Project. This would require mobilization of specialized marine vessels and crews to perform the acoustic surveying and soil coring for the shallow water horizontal directional boring (HDB) of the pipelines crossing under the beach to the FSRU mooring in deep water. The survey results would provide additional information for the final detailed design of the HDB, pipelines, cable crossings, pipeline end manifolds, and mooring system anchors.</li> <li>3. Fully implement the proposed Project under a self-imposed “Safety Case” process for the detailed design of the proposed Project. This would begin with the FEED but could be completed only when the level of the facility definition is in the advanced detailed design phase. This would require a complex series of additional detailed safety checks and balances be put into place, including hazard identification and analysis (HAZID, hazard and operability studies (HAZOPs), quantitative risk analyses (QRA), formal safety assessments (FSAs), and associated safety engineering exercises such as process plant modeling and analyses. This would be finalized during the detailed design of the FSRU safety systems, the process plant and deck</li> </ol>	Less than significant

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>layouts, and the associated systems such as piping and utilities, and the control systems and procedures. Upon start-up, the safety case would become a “living tool” for the facility operating team—one that would be updated and reanalyzed as needed based on operational experience—to ensure that the proposed Project meets or exceeds required standards during all phases of operation.</p> <p>4. Upon internal Project sanction/funding, ensure detailed engineering would be conducted for all components by suitably qualified and experienced contractors under the management of an Applicant technical team and in accordance with demanding technical requirements that would be carefully defined in contractual documents. The selected qualified engineering contractors would likely be different for the contractor designing the hull, regasification topsides, mooring, pipelines, etc. Using this process, the Applicant would ensure that all engineering is executed to meet or exceed the regulatory and Applicant’s internal requirements.</p> <p>5. Commission a series of model tests of the FSRU facility at an experienced and well-established model test basin. More advanced detailed theoretical analyses would be completed first to identify the governing criteria and cases to be modeled in the basin. These model tests would cover both the survival sea states without an LNG carrier moored alongside and the operational sea states with the carrier moored alongside the FSRU. FSRU motions and mooring system loads would be measured under survival storm conditions to confirm the calculated results. Similarly, relative and absolute motions of and between the FSRU and the berthed carrier would be measured to confirm the operability limits of the berth mooring, fender, and loading arm systems. This would also provide information about FSRU motions for the detailed design of the topsides equipment.</p> <p>6. The Applicant would require independent third-party verification of detailed engineering, procured equipment, fabrication, construction, and offshore installation and commissioning of all Project components. Where such independent third-party verification would be required by a regulatory agency, or in order to obtain class certification, a single verification process would be conducted to ensure efficiency of this verification.</p>	

**Table ES-5 Summary of Impacts and Mitigation Measures**

**Note:** Impact classes are defined in Table ES-4. Acronyms for each resource are defined at the end of Table ES-5. Many of the measures listed apply to more than one resource; however, each measure is described only once under its primary resource. For example, AM MT-3a, Patrol Safety Zone, applies to Impacts PS-1, PS-2, MT-3, MT-4, BioMar-6, and BioMar-8, but is described in full only under Impact MT-3.

Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>7. During the construction phases of the proposed Project, both quality and safety audits at major fabrication/construction sites would be undertaken by the Applicant to ensure quality and safety of the Project components. Actual safety and quality performance during construction would be a contractual obligation for the various contractors selected by the Applicant.</p> <p>8. Before releasing the FSRU from its inshore commissioning, i.e., before towing to the proposed Project site, and after offshore installation of all components, but before facility start-up, the Applicant would conduct a formal pre-startup review. The status of the facility, quality assurance, “outstanding items,” operational preparedness, and compliance with legal and regulatory commitments would be carefully reviewed in a team session with final checks before proceeding first with the tow and second with initial start-up of LNG operations. A number of action items would generally be identified in such sessions; some would require closure before proceeding to the next step, and others would be identified for action by specific deadlines or milestones. This process and any findings would be formally documented.</p> <p><b>AM PS-1b. Class Certification and a Safety Management Certificate for the FSRU.</b> Class certification and a safety management certificate are required under international agreements, i.e., through the IMO, for vessels engaged in international voyages. Although this would not be required for the stationary FSRU, the Applicant would obtain class and safety management certification for the facility, including the subsea pipelines, pipeline end manifold, and risers. The Applicant would voluntarily provide a documented management system that would comply with the International Safety Management Code and the Applicant’s internal health, safety, engineering, and construction standards. When operational, the FSRU would be certifiable under International Safety Management, International Organization for Standardization (ISO) ISO-9000 quality standards and ISO-14000 environmental standards.</p> <p><b>AM PS-1c. Periodic Inspections and Surveys by Classification Societies.</b> The Applicant would conduct periodic inspections of the FSRU by classification societies, including annual inspections and a full survey after five years of facility operation and every five years thereafter. This would help ensure that shipboard procedures are regularly reviewed and updated and that processing and</p>	

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>emergency equipment would be maintained appropriately and repaired or upgraded as necessary.</p> <p><b>AM PS-1d. Designated Safety Zone and Area to be Avoided.</b> The Applicant would monitor a 1,640-foot (500 m) radius safety zone to be designated by the USCG around the FSRU where public maritime traffic would be excluded. The Applicant has also proposed designating an Area to be Avoided with a radius of 2 NM (2.3 miles or 3.7 km) around the FSRU. Each of these zones would be marked on nautical charts and would serve as part of the Notice to Mariners to avoid this area.</p> <p><b>AM MT-3a. Patrol Safety Zone</b> (see Section 4.3, "Marine Traffic").</p> <p><b>AM MT-3d. Control Room Team Management Techniques</b> (see Section 4.3, "Marine Traffic").</p> <p><b>AM MT-3e. Broadcast of Navigational Warnings</b> (see Section 4.3, "Marine Traffic").</p> <p><b>MM PS-1e. Cargo Tank Fire Survivability.</b> The Applicant shall provide safety engineering, HAZIDs, HAZOPs, and QRA supporting the detailed engineering design, including cases where cargo tank insulation is presumed to fail in the event of a fire.</p> <p><b>MM PS-1f. Structural Component Exposure to Temperature Extremes.</b> The Applicant shall provide safety engineering, HAZIDs, HAZOPs, and QRA supporting the detailed engineering design, including cases where decking, hulls, and structural members are exposed to both cryogenic temperatures from spilled LNG and exposure to extreme heat from a fire, e.g., the Moss storage tanks would be designed with a steel outer shell to provide a barrier against excessive heat and fire in the event of an emergency in the regasification area, and to minimize impacts on multiple tanks.</p> <p><b>MM PS-1g. Pre- and Post-Operational HAZOPs.</b> The Applicant shall conduct HAZOPs that address all LNG operations prior to beginning operation and after one year of operation. The results of these reviews shall be used to improve and refine operations practices and emergency response procedures. After the initial and first post-operational HAZOPs, additional HAZOPs shall be conducted every two years unless there has been a change in equipment or other significant change. The results of these reviews shall be reviewed as part of configuration</p>	

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		management when any equipment, operational, or procedural changes have been undertaken that would necessitate conducting an additional HAZOP review for the new configuration. HAZOPs may be conducted by the Applicant or by a qualified third party, including participation by the CSLC. <b>MM MT-3f. Live Radar and Visual Watch</b> (see Section 4.3, "Marine Traffic").	
<b>Impact PS-2: Potential Release of LNG due to High-Energy Marine Collision or Intentional Attack</b> A high-energy collision of another vessel with the FSRU or an LNG carrier or an intentional attack could cause a rupture of the Moss tank(s) holding LNG, leading to a release of an unignited flammable vapor cloud that could extend beyond the 1,640-foot (500 m) radius safety zone around the FSRU, impact any members of the boating public in the identified potential impact area, and impact boats traveling in the Traffic Separation Scheme.	CEQA Class I; NEPA major adverse, short-term	<b>AM PS-2a. AIS, Radar, and Marine VHF Radiotelephone.</b> The Applicant would equip the FSRU with an AIS and with real-time radar and marine VHF radiotelephone capabilities. <b>AM PS-1a. Applicant Engineering and Project Execution Process.</b> <b>AM PS-1b. Class Certification and a Safety Management Certificate for the FSRU.</b> <b>AM PS-1c. Periodic Inspections and Surveys by Classification Societies.</b> <b>AM PS-1d. Designated Safety Zone.</b> <b>AM MT-3a. Patrol Safety Zone</b> (see Section 4.3, "Marine Traffic"). <b>AM MT-3b. LNG Carrier Monitoring by the FSRU</b> (see Section 4.3, "Marine Traffic"). <b>AM MT-3c. One LNG Carrier in Approach Route</b> (see Section 4.3, "Marine Traffic"). <b>AM MT-3d. Control Room Team Management Techniques</b> (see Section 4.3, "Marine Traffic"). <b>AM MT-3e. Broadcast of Navigational Warnings</b> (see Section 4.3, "Marine Traffic"). <b>MM PS-1e. Cargo Tank Fire Survivability.</b> <b>MM PS-1f. Structural Component Exposure to Temperature Extremes.</b> <b>MM PS-1g. Pre- and Post-Operational HAZOPs.</b> <b>MM MT-3f. Live Radar and Visual Watch</b> (see Section 4.3, "Marine Traffic"). <b>MM MT-3g. Information for Navigational Charts</b> (see Section 4.3, "Marine Traffic").	Significant

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Offshore Pipelines</b>			
<b>Impact PS-3:</b> <i>Potential Release of Odorized Natural Gas due to Damage to Subsea Pipelines</i> Fishing gear could become hung up on the pipelines and potentially damage one or both of the subsea pipelines. Similar damage may occur due to a seismic event or subsea landslide.	CEQA Class I; NEPA major adverse, short-term	<b>AM PS-3a. More Stringent Pipeline Design.</b> The Applicant would design and install pipelines to meet seismic criteria to ensure that pipeline integrity is maintained during severe seismic events that might be expected to bend or bow the pipelines. <b>MM PS-3b. Emergency Communication/ Warnings.</b> The Applicant shall institute emergency plans and procedures that require immediate notification of vessels in any offshore area, including hailing and Securite broadcasts, and immediate notification of local police and fire services whenever the monitoring system indicates that there might be a problem with subsea pipeline integrity. <b>MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System.</b> The Applicant shall identify any offshore or onshore areas where the new transmission pipelines may be subject to accelerated corrosion due to stray electrical currents, and implement precautions and mitigation measures as recommended in a November 12, 2003, Federal OPS pipeline safety advisory (68 FR 64189). Cathodic protection systems shall be installed and made fully operational as soon as possible during pipeline construction. <b>MM MT-1d. Securite Broadcasts</b> (see Section 4.3, "Marine Traffic"). <b>MM MT-3g. Information for Navigational Charts</b> (see Section 4.3, "Marine Traffic").	Significant
<b>Impact PS-4:</b> <i>Potential Release of Odorized Natural Gas due to Accidental Damage to Onshore Pipelines</i> The potential exists for accidental or intentional damage to the onshore pipelines or valves carrying odorized natural gas. Damage, fires and explosions may occur due to human error, equipment failure, natural phenomena (earthquake, landslide, etc.). This would result in the release of	CEQA Class I; NEPA major adverse short-term	<b>AM PS-4a. Class 3 Pipeline Design Criteria.</b> The Applicant or its designated representative would construct all pipeline segments to meet the minimum design criteria for a USDOT Class 3 location, which would improve safety and reduce the need to reconstruct the pipeline segments as additional development and population densities increase along the onshore pipeline corridor. <b>MM PS-4b. Pipeline Integrity Management Program.</b> The Applicant shall develop and implement a pipeline integrity management program, including confirming all potential High Consequence Areas (including identification of potential sites from "licensed" facility information [day care, nursing care, or similar facilities] available at the city and county level) and ensuring that the public education program is fully implemented before beginning pipeline operations.	Significant



**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
an odorized natural gas cloud at concentrations that are likely to be in the flammable range.		<p><b>MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls.</b> The Applicant shall install five approximately equally spaced sectionalizing valves with appropriately sited and sized blowdown stacks on the Center Road Pipeline. The Applicant shall install three approximately equally spaced sectionalizing valves with appropriately sited and sized blowdown stacks on the Line 225 Pipeline Loop. The number of valves includes the station valves at each end of these pipelines. All valves shall be equipped with either remote valve controls or automatic line break controls.</p> <p><b>MM PS-4d. Treat Shore Crossing as Pipeline HCA.</b> The Applicant shall treat any onshore public beach area, under which is located a pipeline(s) that is carrying natural gas, as an HCA.</p> <p><b>MM PS-4e. Safety Marker Indicating the Presence of Buried Natural Gas Pipeline at Ormond Beach.</b> Prior to the operation of the shore crossing pipelines, the Applicant shall install signage indicating the presence of the buried natural gas pipelines at Ormond Beach. The sign shall list the Operator's name and shall include a toll free number to call for information in case of plans to dig in the area, or to report a leak, or an emergency.</p> <p><b>MM PS-4f. Emergency Response.</b> The Applicant shall implement emergency plans and procedures as specified in its operations plan and shall immediately dispatch trained personnel to the area to investigate the emergency and secure the area until the release has been stopped and pipeline integrity under the beach is assured as verified by the Applicant. The emergency plans shall be in compliance with OPS Advisory Bulletin ADB-05-03, which requires preplanning with other utilities for coordinated response to pipeline emergencies.</p> <p><b>MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System.</b></p>	
<b>Onshore Operation</b>			
<p><b>Impact PS-5:</b> <i>Increased Potential for Injury, Fatality, and Property Damage Due to Fire or Explosion in Areas with Less Robust Housing Construction and Outdoor Activity.</i></p> <p>In the event of an accident, there is a</p>	CEQA Class I; NEPA major adverse, short-term	<p><b>AM PS-4a. Class 3 Pipeline Design Criteria.</b></p> <p><b>MM PS-5a. Treat Manufactured Home Residential Community as a High Consequence Area.</b> The Applicant shall treat as an HCA those areas where the potential impact radius includes part or all of a manufactured-home residential community, including outdoor gardens and areas with one or more normally occupied mobile homes or travel trailers used as temporary or semi-permanent</p>	Significant

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
greater likelihood of injury, fatality, and property damage near Center Road Pipeline MP 4.1, an HCA.		housing. The Applicant shall enact for these areas the pipeline safety requirements contained in 49 CFR Part 192 Subpart O.	
<b>MARINE TRAFFIC (Section 4.3)</b>			
<b>Offshore Construction</b>			
<p><b>Impact MT-1:</b> <i>Temporary Increase in Maritime Traffic during Installation of the Mooring System, FSRU Mooring, Offshore Pipeline Construction, and Shore Crossing Resulting in Increased Safety Risks</i></p> <p>Marine activities associated with site preparation, transportation, and installation of the mooring system, FSRU, and subsea pipelines could temporarily increase maritime traffic congestion and increase the risk of vessel collision.</p>	CEQA Class II; NEPA minor adverse, short-term	<p><b>AM MT-1a. Safety Vessel Warnings.</b> During offshore construction, a safety vessel would be stationed 3 to 5 NM (3.5 to 5.8 miles or 5.6 to 9.3 km) from the pipelaying barge in the direction of predominant traffic flow to warn vessels approaching construction that deviation from their course and speed is necessary.</p> <p><b>AM MT-1b. Automatic Identification System.</b> The pipelaying barge and associated vessels would be equipped with AIS.</p> <p><b>MM MT-1c. Notices to Mariners.</b> The Applicant shall ensure that Notices to Mariners contain planned positions of vessels for the entire construction period, planned traffic lane closures, speed restrictions in the vicinity of vessels, and alternative routes and radio channels that Project vessels shall monitor and work. These notices shall include vessel names, if available, and shall mention the presence of the safety vessel(s) identified in MM MT-1e. The Applicant shall submit unforeseen short-notice changes to the USCG for dissemination as a Broadcast Notice to Mariners and shall include such changes in the Securite broadcasts identified in MM MT-1d.</p> <p><b>MM MT-1d. Securite Broadcasts.</b> The Applicant shall ensure that a Project vessel in the construction area makes Securite broadcasts on VHF-FM at half-hour intervals, informing mariners about the current construction location, any lane restrictions, and preferred speed and standoff distances from the Project vessels and trailing pipeline. The vessel could be the safety vessel identified in MM MT-1e.</p> <p><b>MM MT-1e. Safety Vessel.</b> The Applicant shall ensure that the safety vessel is present at all times during construction, be equipped with radar and marine VHF radio, be of sufficient size and type, and have a sufficiently trained crew to respond to emergencies. This vessel's captain shall instruct intercepted vessels as to the location of construction vessels and the standoff distances from vessels and the pipelines to ensure that the intercepted vessel safely avoids the</p>	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>construction zone. This vessel shall be of sufficient speed to intercept vessels failing to alter course or answer radio hails. Alternatively, more than one vessel of this type shall be used and stationed in various positions around the construction site to ensure full coverage of the construction area.</p> <p><b>MM MT-1f. Guard Boats.</b> The Applicant shall station two guard boats, in addition to the safety vessel identified in MM MT-1e, on watch while construction takes place in waters less than 656 feet (200 m) deep where trawling occurs to warn or intercept commercial fishing vessels before they reach the construction area. These smaller guard boats shall be stationed on either side of the construction vessels to intercept the faster recreational vessels that may not have marine radios. The guard boats shall be equipped with spotlights for identification of non-answering vessels at night and loud hailers or bullhorns to warn these vessels about the construction area.</p> <p><b>MM MT-1g. Construction Schedule Signs.</b> The Applicant shall post signs at local marinas and ports to inform the public of the nearshore construction schedule at least one month prior to the first day of construction. One week prior to construction the Applicant shall replace any signs that are no longer present.</p>	
<p><b>Impact MT-2:</b> <i>Long-Term Increase in Maritime Traffic during Offshore Operations</i></p> <p>LNG carriers, tugs, and attending vessels transiting to and from the FSRU, could increase maritime traffic congestion during Project operations.</p>	CEQA Class II; NEPA minor adverse, long-term	<p><b>AM MT-2a. Provisions for Delays.</b> Project vessels for Project operations (including LNG carriers) would not use anchorages except possibly in emergency situations. If there is a delay in docking, LNG carriers would slow their speed to arrive at a suitable time or stop or drift between 100 and 200 NM (115 and 230 miles or 185 and 370 km) offshore.</p> <p><b>AM MT-2b. Established Routes to and from Port Hueneme.</b> Vessels would use the routes depicted on Figure 4.3-3 to travel to and from Port Hueneme.</p> <p><b>AM MT-2c. Compliance with JOFLO Vessel Traffic Corridors.</b> The Applicant would abide by the JOFLO corridors that direct traffic into specified patterns within 30 fathoms (180 feet) of shore established by JOFLO. Although JOFLO is not a governmental agency and has no jurisdiction to set marine traffic corridors, the Applicant would respect its established corridors.</p> <p><b>MM MT-2d. Incorporation of Procedures for Delays.</b> To formalize AM MT-2a, the Applicant shall incorporate procedures that mandate early notification of possible delays into the facility operations manual for LNG carriers so that a carrier might reduce transit speed in order to arrive at a later time and shall</p>	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		contact the incoming ship once it is determined that a delay may occur to instruct them to stay at least 100 NM (115 miles or 158 km) offshore. <b>MM MT-2e. Evaluation of Routes to and from Port Hueneme.</b> After operating for six months, the Applicant and the Port of Hueneme Safety Committee shall assess the volume of vessel traffic, types of vessels, frequency of encounters, if any, and any reported incidents to determine whether Project vessel operations should be modified. The Applicant shall be required to comply with any requested modifications.	
<b>Impact MT-3: Long-Term Increase in Safety Hazards due to the Presence of the FSRU and LNG Carriers</b> The FSRU mooring location would be situated approximately 2 NM (2.3 miles or 3.7 km) from the Southbound Coastwise Traffic Lane of the Santa Barbara Channel TSS, which has relatively high levels of maritime traffic. In addition, vessels entering/leaving Port Hueneme or other local marina could pass nearby; thus, maritime traffic could be substantially increased with Project operations and the risk of vessel collision could be increased.	CEQA Class II; NEPA minor adverse, short-term	<b>AM MT-3a. Patrol Safety Zone.</b> Two tugboats on standby duty would patrol Cabrillo Port's designated safety zone, except during docking and undocking operations. Dedicated personnel aboard the FSRU would monitor marine traffic. <b>AM MT-3b. LNG Carrier Monitoring by the FSRU.</b> LNG carriers inbound and outbound would be monitored by the FSRU's own marine traffic management system. Specific required reporting and traffic information exchange protocols would be implemented. Appropriate adjustments to scheduling of LNG carriers would be in place to avoid routine collision possibilities. <b>AM MT-3c. One LNG Carrier in Approach Route.</b> Only one LNG carrier would be permitted to transit the approach route at any given time (see Figure 4.3-2). Minimum distances between LNG carriers when enroute on the LNG carrier approach route would be prescribed. <b>AM MT-3d. Control Room Team Management Techniques.</b> The Applicant would ensure that all members of the control room team are aware of possible dangers of upcoming operations and would inform all crew members that it is their responsibility to bring indication of danger to the attention of higher authorities. <b>AM MT-3e. Broadcast of Navigational Warnings.</b> The FSRU would broadcast navigational warnings of arriving and departing LNG carriers on radio, TOR, NAVTEX, and Sat-C. <b>MM MT-3f. Live Radar and Visual Watch.</b> The Applicant shall ensure that a live radar and visual watch is maintained at all times on board the FSRU. The watch supervisor shall be an experienced and qualified officer in charge of the navigation watch and have a STCW endorsement. The watch supervisor and all watchstanding support personnel shall be qualified in accordance with the criteria outlined in Sections II and VIII of the STCW-95 Code with demonstrated	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>proficiency in the use of all electronic navigational and communications equipment. The watchstanders shall properly operate equipment in order to detect and identify approaching vessels and note approaching aircraft at all times. The watchstanders shall provide a full-time radio watch, which shall monitor VHF-FM frequencies commonly used for emergency and normal ship-to-ship communications, and contact approaching vessels to inform them of the FSRU's location, intentions, and the nature of safety and/or security zones in effect. Guidance for these FSRU positions shall be included in the facility operations and security manuals.</p> <p><b>MM MT-3g. Information for Navigational Charts.</b> The Applicant shall ensure that all required information is provided to the USCG and other agencies, as necessary, to place the FSRU location, safety zone information, and subsea pipeline locations and warnings on navigational charts. This shall include a Notice to Mariners for chart correction and inclusion on the next edition of applicable navigation charts. These data shall be provided sufficiently early to allow these changes to be made on charts when FSRU mooring occurs. The Applicant shall coordinate with the USCG to identify acceptable deadlines currently in place.</p>	
<p><b>Impact MT-4:</b> <i>FSRU or LNG Carrier Accident Impact on Marine Traffic</i> An incident at the FSRU or on an LNG carrier could adversely affect marine traffic.</p>	CEQA Class II; NEPA minor adverse, short-term	<p><b>AM PS-2a. AIS, Radar, and Marine VHF Radiotelephone.</b> The Applicant would equip the FSRU with an AIS and with real-time radar and marine VHF radiotelephone capabilities.</p> <p><b>AM MT-3a. Patrol Safety Zone.</b></p> <p><b>AM MT-3b. LNG Carrier monitoring by the FSRU.</b></p> <p><b>AM MT-3c. One LNG Carrier Approach Route.</b></p> <p><b>MM PS-3b. Emergency Communication/ Warnings.</b> The Applicant shall institute emergency plans and procedures that require immediate notification of vessels in any offshore area, including hailing and Securite broadcasts, and immediate notification of local police and fire services whenever the monitoring system indicates that there might be a problem with subsea pipeline integrity.</p> <p><b>MM MT-3f. Live Radar and Visual Watch.</b></p>	Less than significant
<p><b>Impact MT-5:</b> <i>Temporary Interference with Operations in the Point Mugu Sea Range or the SOCAL Range Complex</i></p>	CEQA Class II; NEPA minor adverse, short-term	<p><b>MM MT-5a. Avoid Point Mugu Sea Range.</b> The Applicant shall ensure that Project-related vessels, unless such vessels are related to pipeline construction, do not intrude into the waters in the Point Mugu Sea Range. When construction must take place in a Point Mugu Sea Range warning area, such as where the</p>	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<p><i>during Offshore Construction</i></p> <p>Marine activities associated with site preparation, transportation, and installation of the mooring system, FSRU, or subsea pipelines could temporarily burden maritime traffic tracking systems or make clearing of some warning areas impossible; thus, temporary disruption of operations in the Point Mugu Sea Range or the SOCAL Range Complex could occur.</p>	term	<p>subsea pipelines cross the range, the Applicant shall give notice of at least one month, and preferably six months, to the U.S. Navy to allow for adequate coordination.</p> <p><b>MM MT-5b. Daily Safety Briefs.</b> The Applicant shall ensure that daily safety briefs aboard all Project vessels include instructions to avoid use of Point Mugu Sea Range waters.</p> <p><b>MM MT-5c. Daily Coordination with the U.S. Navy.</b> The Applicant shall coordinate daily (or at an interval that the U.S. Navy deems sufficient) with the U.S. Navy to ensure that no conflicts exist between Navy operations and Project construction when Project vessels would be expected to be in any warning area. If a Navy warning area needs to be used by construction vessels, construction shall be postponed until the situation is resolved to the satisfaction of Project management and the U.S. Navy. Coordination with the U.S. Navy shall be completed at least one month prior to the date that construction begins.</p> <p><b>MM MT-5d. Monitor U.S. Navy Securite Broadcasts.</b> The Applicant shall ensure that Project vessels monitor all U.S. Navy Securite warning broadcasts on VHF-FM. This would likely require switching from normally monitored frequencies, when prompted by a preliminary broadcast by the U.S. Navy, for additional information. Instructions to do so shall be included in daily safety briefs. Conflicts, actual or perceived, shall be addressed immediately by the Project person-in-charge on site, or by individual Project vessel captains via VHF communications with the U.S. Navy.</p>	
<p><b>Impact MT-6: Long-Term Interference with Operations in the Point Mugu Sea Range and the SOCAL Range Complex</b></p> <p>Marine activities associated with Project operations could burden maritime traffic tracking systems or could make clearing of some warning areas impossible; thus, disruption of operations in the Point Mugu Sea Range or the SOCAL Range Complex could occur.</p>	CEQA Class II; NEPA minor adverse, long-term	<p><b>MM MT-6a. Follow U.S. Navy Securite Broadcasts.</b> The Applicant shall heed U.S. Navy Securite broadcasts and coordinate with the U.S. Navy range scheduling authorities regarding LNG carrier shipments to ensure that they do not conflict with range operations.</p> <p><b>MM MT-6b. LNG Carrier Schedules.</b> The Applicant shall provide long-range LNG carrier schedules in advance and master schedules at least quarterly to the U.S. Navy so that transits can be coordinated.</p> <p><b>MM MT-6c. Coordinate with the U.S. Navy.</b> The Applicant shall notify the U.S. Navy range scheduling authorities when approaching LNG carriers are 24 to 48 hours from the FSRU.</p>	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact MT-7:</b> <i>Long-Term Interference with Operations at Port Hueneme</i> Activities associated with Project operations could increase traffic at Port Hueneme; thus, disruption of operations at Port Hueneme could occur.	CEQA Class II; NEPA minor to moderate adverse, long-term	<b>MM MT-7a. Project Pilots.</b> The Applicant shall have all masters of Project tugboats obtain an endorsement on their master's license and a pilot's license from the USCG and the Port of Hueneme Pilots Association before construction begins. <b>MM MT-7b. U.S. Navy Exemption.</b> The Applicant shall apply for an U.S. Navy exemption to the requirement that operations cease in the Port of Hueneme channel. <b>MM MT-7c. Scheduling of Tug trips to the Port of Hueneme.</b> The Applicant shall make arrangements for use of a dedicated berth and coordinate at least 48 hours in advance with the Port of Hueneme to schedule tugboat arrivals and departures such that they do not conflict with commercial fish offloading operations	Less than significant
<b>AESTHETICS [AES] (Section 4.4)</b>			
<b>Offshore Construction</b>			
<b>Impact AES-1:</b> <i>Alter Ocean Views from Onshore and Channel Islands Viewpoints</i> The FSRU in an unobstructed viewshed could alter views from beach areas, residences near sea level, residences at higher elevations, and from hiking trails at higher elevations.	CEQA Class III; NEPA minor adverse, long-term	None.	Less than significant
<b>Onshore Construction</b>			
<b>Impact AES-2:</b> <i>Alter Nighttime Ocean Views</i> Night lighting on the FSRU could be visible to residents, thereby altering night vistas.	CEQA Class III; NEPA minor adverse, long-term	<b>AM BioMar-3a. Construction/Operation Lighting Control</b> (see Section 4.7, Biological Resources – Marine”).	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact AES-3:</b> <i>Alter Views for Recreational Boaters</i> The FSRU would change the visual character of the ocean view for recreational boaters.	CEQA Class I; NEPA major adverse, long-term	None.	Significant
<b>Impact AES-4:</b> <i>Alter Offshore Views from an Eligible State Scenic Highway</i> The FSRU would be visible to travelers on an eligible State Scenic Highway.	CEQA Class III; NEPA minor adverse, long-term	None.	Less than significant
<b>Impact AES-5:</b> <i>Alter Ocean Views During Construction</i> Night lighting during offshore construction could be visible from the shore and to residents living in the foothills and higher elevation area in Malibu, thereby temporarily altering the nighttime viewshed.	CEQA Class III; NEPA minor adverse, long-term	<b>AM BioMar-3a. Construction Lighting/Operation Control</b> (see Section 4.7, Biological Resources – Marine”).	Less than significant
<b>Impact AES-6:</b> <i>Substantial Damage to Onshore Scenic Resources Along a State Scenic Highway</i> Construction of the onshore pipelines could alter the scenic quality of a highway eligible for the State Scenic Highway System.	CEQA Class III; NEPA minor adverse, long-term	<b>MM GEO-1b. Backfilling, Compaction, and Grading</b> (see Section 4.11, “Geologic Resources and Hazards”).	Less than significant
<b>AGRICULTURE AND SOILS (Section 4.5)</b>			
<b>AGR-1:</b> <i>Temporary Loss of Agricultural Land</i> Construction activities could temporarily cause a loss of agricultural land, crops, or crop production.	CEQA Class II; NEPA minor adverse, short-term	<b>AM AGR-1a. Compensation for Temporary and Permanent Loss of Agricultural Land, Crop Loss, Future Loss of Production, and Other Negative Impacts.</b> In compliance with California Government Code § 7267 et seq., the Applicant or its designated representative would make every reasonable effort to acquire easements (temporary and permanent) expeditiously by negotiation. The easement rights would be appraised before the initiation of negotiations, and the property owner or the property owner’s designated	Less than significant



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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>representative would be given an opportunity to accompany the appraiser during the inspection of the property. SoCalGas would establish an amount that it believes to be just compensation for the easement rights, based upon the appraisal. SoCalGas would provide the property owner with a written statement and summary of the basis for the amount it established as just compensation, which amount would not be less than the appraised value of the easement rights. The appraisal process would consider the value of the easement rights being acquired, and where applicable, crop loss, future loss of production, and any other negative impacts that SoCalGas' acquisition and use of the easement areas would have upon agricultural operations.</p> <p><b>AM AGR-1b. Coordinate Pipeline Installation with Farmers.</b> The Applicant or its designated representative would schedule construction to begin immediately after harvest or before planting if the construction and planting/harvest schedules coincide closely enough to not compromise the overall pipeline construction completion schedule. The Applicant or its designated representative would let the farmer decide whether the farmer or the Applicant's contractor would remove seed/crops.</p> <p><b>AM AGR-1c. Post-Construction Restoration Measures.</b> The Applicant or its designated representative would protect all substructures, such as drain tiles or other types of irrigations systems, during construction and replace any substructures if damaged. The Applicant or its designated representative would restore the grade of the TCE to match the surrounding field for drainage or compensate the farmer if the farmer chooses to have a contractor perform precision grading.</p> <p><b>MM AGR-1d. Minimize Orchard Tree Removal.</b> Recognizing that no trees can grow within 15 feet (4.6 m) of the pipeline, the Applicant or its designated representative shall remove, box, maintain, and replant small orchard trees in the area between the TCE and the permanent ROW. The Applicant or its designated representative shall minimize the number of mature trees removed.</p>	

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>AGR-2: Permanent Conversion of Agricultural Land to Non-Agricultural Use</b> Operational activities could cause a loss of agricultural land, crops, or crop production. Construction of permanent facilities could cause a permanent loss of agricultural land, crops, or crop production. Agricultural land that is preserved under the Williamson Act could be permanently converted from agricultural land to non-agricultural land. Prime Farmland or Farmland of Statewide Importance could be converted to non-agricultural uses.	CEQA Class I; NEPA major adverse, long-term	None.	Significant
<b>AGR-3: Topsoil Loss, Mixing, and/or Compaction</b> Construction activities could result in topsoil and subsoil mixing, compaction, and/or introduction of weed/invasive species, thereby reducing agricultural productivity.	CEQA Class II; NEPA minor adverse, short-term	<b>AM TerrBio-4a. Weed Management Plan</b> (see Section 4.8, "Biological Resources – Terrestrial"). <b>MM AGR-3a. Topsoil Salvage and Replacement.</b> The Applicant or its designated representative shall ensure that the upper 12 inches (0.3 m) of topsoil (or less, depending on the existing depth of the topsoil) is salvaged, segregated from the rest of the soil, and replaced on top of the disturbed areas and replaced wherever the pipeline is trenched. <b>MM AGR-3b. Landowner Compensation for Soil Productivity Losses.</b> Prior to construction, the Applicant or its designated representative shall negotiate with landowners regarding measures to ensure that soil productivity is maintained and that the criteria for determining loss of soil productivity and the terms for compensation for such loss are determined.	Less than significant
<b>AGR-4: Dust Deposition</b> Dust generated during construction could be deposited on adjacent agricultural lands with planted crops, temporarily reducing productivity.	CEQA Class II; NEPA minor adverse, short-term	<b>MM AIR-2b. Construction Fugitive Dust Plan</b> (see Section 4.6, "Air Quality"). <b>MM AGR-4a. Dust Suppression Water Quality.</b> For dust suppression, the Applicant or its designated representative shall use potable water sources or water sources approved for discharge near agricultural uses.	Less than significant

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>AGR-5:</b> <i>Loss of Tree Rows</i> Loss of tree rows could reduce agricultural productivity.	CEQA Class II; NEPA minor adverse, short-term	<b>MM TerrBio-2g. Tree Avoidance and Replacement</b> (see Section 4.8, "Biological Resources – Terrestrial").	Less than significant
<b>AGR-6:</b> <i>Impacts from a Leak or Fire Associated with the Natural Gas Transmission Line</i> If the natural gas transmission line leaked and/or was ignited, the resulting fire could cause the loss of crops or the contamination of the soil in the vicinity of the leak or fire.	CEQA Class II; NEPA minor adverse, short-term	<b>AM PS-3a. More Stringent Pipeline Design</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>AM PS-4a. Class 3 Pipeline Design Criteria</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM AGR-6a. Restoration After a Natural Gas Transmission Line Accident.</b> The Applicant or its designated representative shall restore the area that was either contaminated or burned as a result of a breach in the natural gas transmission line. <b>MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-4b. Pipeline Integrity Management Program</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis").	Less than significant
<b>AGR-7 Alt:</b> <i>Potential for Use of Agricultural Land for Staging Areas</i> Under the Arnold Road Shore Crossing/Arnold Road Pipeline Alternative, construction activities associated with staging areas could temporarily cause a loss of agricultural land, crops, or crop production. Agricultural land that is preserved under the Williamson Act could be temporarily converted from agricultural land to non-agricultural land. Prime Farmland or Farmland of Statewide Importance soils	CEQA Class II; NEPA minor adverse, short-term	<b>AM AGR-1a. Compensation for Temporary and Permanent Loss of Agricultural Land, Crop Loss, Future Loss of Production, and Other Negative Impacts.</b> <b>AM AGR-1b. Coordinate Pipeline Installation with Farmers.</b> <b>AM AGR-1c. Post-Construction Restoration Measures.</b> <b>MM AGR-1d. Minimize Orchard Tree Removal.</b>	Less than significant

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
would temporarily be converted to non-agricultural uses.			
<b>AGR-8 Alt:</b> <i>Permanent Conversion of Agricultural Land to Non-Agricultural Use</i> Under the Arnold Road Shore Crossing/Arnold Road Pipeline Alternative, construction of permanent facilities could cause a permanent loss of agricultural land, crops, or crop production. Agricultural land that is preserved under the Williamson Act could be permanently converted from agricultural land to non-agricultural land. The pipeline corridor could convert Prime Farmland and Farmland of Statewide Importance soils to non-agricultural uses.	CEQA Class I; NEPA major adverse, long-term	None.	Less than significant
<b>AGR-9 Alt:</b> <i>Potential for Use of Agricultural Land for Staging Areas</i> Under the Point Mugu Shore Crossing/Casper Road Pipeline Alternative, construction activities associated with staging areas could temporarily cause a loss of agricultural land, agricultural soils, crops, or crop production. Agricultural land that is preserved under the Williamson Act could be temporarily converted from agricultural land to non-agricultural land.	CEQA Class II; NEPA minor adverse, short-term	<b>AM AGR-1b. Coordinate Pipeline Installation with Farmers.</b> <b>AM AGR-1c. Post-Construction Restoration Measures.</b> <b>MM AGR-1d. Minimize Orchard Tree Removal.</b>	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>AGR-10 Alt:</b> <i>Permanent Conversion of Agricultural Land to Non-Agricultural Use</i> Under the Point Mugu Shore Crossing/Casper Road Pipeline Alternative, construction of permanent facilities could cause a permanent loss of agricultural lands, crops, or crop production. Agricultural land that is preserved under the Williamson Act could be permanently converted from agricultural land to non-agricultural land. Prime Farmland and Farmland of Statewide Importance soils could be converted to non-agricultural uses.	CEQA Class I; NEPA major adverse, short-term	None.	Significant
<b>AIR QUALITY [AQ] (Section 4.6)</b>			
<b>Impact AIR-1:</b> <i>Net Emission Increases of Criteria Pollutants from Construction Activities in Designated Nonattainment Areas</i> Project construction activities in Ventura and Los Angeles Counties would generate emissions that exceed quantitative thresholds for ozone precursors (NO <sub>x</sub> and ROCs) and CO.	CEQA Class I; NEPA major adverse, short-term	<b>AM AIR-1a. USEPA Nonroad Engine Standards.</b> At a minimum, all onshore construction equipment would utilize engines compliant with USEPA Tier 2 nonroad engine standards. To the extent possible, onshore equipment would utilize engines compliant with USEPA Tier 3 or 4 nonroad engine standards. <b>AM AIR-1b. Offshore Construction Equipment Standards.</b> All vessels (and associated offshore equipment) used during shore crossing construction, offshore pipeline installation, and mooring/FSRU installation, would utilize only engines that emit CO, PM, NO <sub>x</sub> , and ROC at rates less than or equal to USEPA Tier 1 nonroad engine standards (as outlined in 40 CFR 89.112, Table 1). <b>AM AIR-1c. Ultra Low Sulfur Diesel.</b> All Project operational vessels (including LNG carrier, tugs, and crew boat), FSRU equipment, and construction vessels and equipment would be fueled with ultra low sulfur diesel (less than 15 parts per million sulfur). This is consistent with California regulations (starting January 2007) that require that the sulfur content of all vehicular diesel fuel and non-vehicular diesel fuel supplied in California (including fuel for locomotives and harborcraft) not exceed 15 parts per million by weight. As it is anticipated that some of the operational and construction vessels/equipment would be transported	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>from outside of California, this measure applies to vessels regardless of place of origin.</p> <p><b>MM AIR-1d. Gasoline-Fueled Equipment.</b> The Applicant or its designated representative shall use only gasoline-fueled equipment that meets the exhaust emission standards for CO and NO<sub>x</sub> (as listed for engine displacements greater than 1.0 liter) outlined in 13 CCR § 2433: Exhaust Emission Standards and Test Procedures – Off-Road Large Spark-Ignition Engines.</p> <p><b>MM AIR-1e. USEPA Tier 3 Nonroad Engine Standards.</b> All onshore construction equipment with a rating between 100 and 750 hp would be required to utilize engines compliant with USEPA Tier 3 nonroad engine standards.</p> <p><b>MM AIR-1f. Construction Emissions Reduction Plan.</b> The Applicant shall prepare a Construction Emissions Reduction Plan to be incorporated into all contracts and contract specifications for construction work. This plan shall specify all Applicant measures and mitigation measures related to construction equipment emission standards/controls as contractual requirements. The plan shall also outline additional specific measures, as contractual requirements, to reduce or eliminate potential impacts associated with construction-related emissions of criteria air pollutants and toxic air contaminants. At a minimum, the plan shall include the following additional specific measures:</p> <ul style="list-style-type: none"> <li>• As feasible, reduce emissions of diesel particulate matter (DPM) and other pollutants by using alternative clean fuel technology such as electric, hydrogen fuel cells, and propane-powered equipment or compressed natural gas-powered equipment with oxidation catalysts instead of gasoline- or diesel-powered engines.</li> <li>• Ensure that all construction equipment is properly tuned and maintained and shut off when not in direct use;</li> <li>• Prohibit engine tampering to increase horsepower;</li> <li>• Locate engines, motors, and equipment as far as possible from residential areas and at least 300 feet (91 m) from sensitive receptors, such as schools, daycare centers, and hospitals (Note: the proposed pipeline routes would not pass within 300 feet [91 m] of any sensitive receptor locations);</li> <li>• Provide carpool shuttles and vans to transport construction workers to and</li> </ul>	

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>from construction sites, thus eliminating some private vehicle trips;</p> <ul style="list-style-type: none"> <li>• Arrange for food catering trucks to visit each Project site twice a day;</li> <li>• Reduce construction-related trips of workers and equipment, including trucks; and</li> <li>• Require that on-road vehicles be less than 10 years old.</li> </ul> <p>Prior to finalization of the plan, the Applicant shall also consult with the VCAPCD and SCAQMD to identify other potential control measures not specified above. The Applicant or its designated representative shall submit this plan and related construction contract specifications to the California State Lands Commission (CSLC), USEPA, and to the extent applicable under local rules and regulations, VCAPCD and SCAQMD, prior to construction activities.</p> <p><b>MM AIR-1g. Construction Equipment Documentation.</b> The Applicant or its designated representative shall prepare and maintain documentation that demonstrates implementation of the Applicant's proposed emission reduction measures and required mitigation measures. The following documents and/or files shall be submitted to the CSLC, USEPA, and to the extent applicable under local rules and regulations, VCAPCD and SCAQMD:</p> <ul style="list-style-type: none"> <li>• Inventory of all equipment and vessels used during each onshore and offshore construction activity. At a minimum, this inventory shall include an equipment description, equipment identification, identification of type of engine(s), and engine emission data; and</li> <li>• Documentation certifying that the actual emission rates for the engine(s) of each equipment and vessel used during construction comply with mitigation measures and applicant measures as required. This documentation shall include USEPA or CARB certification of engine emissions, source testing results for specific engines, or an equivalent means of certifying emission rates of NO<sub>x</sub>, CO, ROC, and PM<sub>10</sub> from this equipment.</li> </ul>	
<b>Impact AIR-2:</b> <i>Violations of Ambient Air Quality Standards Causes by Particulate Emissions from Onshore Construction Activities</i> Onshore Project construction activities	CEQA Class I; NEPA major adverse, short-term	<p><b>AM AIR-2a. Fugitive Dust Controls.</b> The Applicant or its designated representative would provide for the following control measures:</p> <ul style="list-style-type: none"> <li>• Excavation and spoils would be watered down;</li> <li>• Spoil piles that remain more than a few weeks would be covered with tarps;</li> <li>• Water trucks would be used for dust suppression; and</li> </ul>	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
would generate PM <sub>10</sub> and PM <sub>2.5</sub> emissions that could cause or contribute to existing or projected violations of NAAQS and/or State Ambient Air Quality Standards.		<ul style="list-style-type: none"> <li>Disturbed areas not covered with surface structures, such as buildings and pavements, would be stabilized following construction activities. This stabilization may involve planting these areas with suitable vegetation to minimize future on-site soil loss and off-site sedimentation.</li> </ul> <p><b>MM AIR-2b. Construction Fugitive Dust Plan.</b> The Applicant or its designated representative shall be required to develop, and submit to the VCAPCD and the SCAQMD for approval, a Construction Fugitive Dust Control Plan prior to the commencement of construction activities. The plan shall be incorporated into all contracts and contract specifications for construction work. At a minimum, the control measures specified in the plan shall include Applicant measures and conform to all applicable requirements of SCAQMD Rule 403 (as listed for large construction operations) in both Ventura and Los Angeles counties. The plan shall outline the steps to be taken to minimize fugitive dust generated by construction activities by:</p> <ul style="list-style-type: none"> <li>Describing each active operation(s) that may result in the generation of fugitive dust;</li> <li>Identifying all sources of fugitive dust, e.g., earth moving, storage piles, vehicular traffic; and</li> <li>Describing the control measures to be applied to each of the sources of dust emissions identified above. The descriptions shall be sufficiently detailed to demonstrate that the best available control measure(s) required by the SCAQMD and the VCAPCD for linear projects will be used and/or installed during all periods of active operations.</li> <li>Stipulating the use of the following control measures, in addition to or as listed in SCAQMD Rule 403, such as, but not limited to: <ul style="list-style-type: none"> <li>Use of street sweeping and trackout devices at all construction sites.</li> <li>Frequent watering or stabilization of excavation, spoils, access roads, storage piles, and other sources of fugitive dust.</li> <li>Installing temporary coverings on storage piles when not in use.</li> <li>Pre-watering of soils prior to trenching.</li> <li>Dedicating water truck or high capacity hose to any soil screening operations.</li> </ul> </li> </ul>	



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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<ul style="list-style-type: none"> <li>- Minimizing drop height of material through screening equipment.</li> </ul> <b>MM AIR-1e. USEPA Tier 3 Nonroad Engine Standards.</b> <b>MM AIR-1f. Construction Emissions Reduction Plan.</b> <b>MM AIR-1g. Construction Equipment Documentation.</b>	
<b>Impact AIR-3:</b> <i>Violations of Ambient Air Quality Standards, Exposure of the Public to Substantial Pollutant Concentrations, and/or Creation of Objectionable Odors Caused by an Accidental LNG Spill or Pipeline Rupture</i> Although rare, an LNG spill from the FSRU or a pipeline rupture would result in a natural gas release and/or a fire that could cause temporary increases in ambient air concentrations of criteria pollutants in excess of air quality standards, expose sensitive receptors and the general public to substantial concentrations of toxic air contaminants, and/or create objectionable odors.	CEQA Class I; NEPA moderate adverse, short-term	<b>AM PS-3a. More Stringent Pipeline Design</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>AM PS-4a. Class 3 Pipeline Design Criteria</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-4d. Treat Shore Crossing as Pipeline HCA</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-4e. Safety Marker Indicating the Presence of Buried Natural Gas Pipeline at Ormond Beach</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-4f. Emergency Response</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-5a. Treat Manufactured Home Residential Community as a High Consequence Area</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis").	Significant
<b>Impact AIR-4:</b> <i>Emissions of Ozone Precursors from the FSRU</i> Emissions of NO <sub>x</sub> and ROC generated from FSRU and LNG carrier equipment could contribute to ambient ozone impacts in the areas located downwind of the Project.	CEQA Class II; NEPA minor adverse, long-term	<b>AM AIR-4a. Emissions Reduction Programs.</b> As part of air permit-to-construct application procedures, the Applicant has committed to the USEPA to achieve emissions reductions (in addition to reductions inherent to the Project) to an amount equal to the FSRU's annual NO <sub>x</sub> emissions. The Applicant has executed contracts to retrofit two marine vessels (long haul tugs) by replacing the propulsion engines of each vessel with modern low emitting engines (Tier 2 compliant diesel-fired engines). At the request of the USEPA and the CARB, the Applicant conducted source testing to assist in determining the emission reductions expected as a result of the retrofits. The Applicant estimated that the	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result																																
		<p>repowering of two tugs could result in emission reductions of approximately 165.5 tons per year of NO<sub>x</sub>.</p> <p>In a memorandum from the CARB to the CSLC dated February 9, 2007, the CARB outlined the apportionment of the estimated NO<sub>x</sub> emission reductions based on the anticipated tug operations within the following regions:</p> <p><i>Emission Reductions</i></p> <table><tr><td><u>Local Air District</u></td><td><u>(tons per year)</u></td></tr><tr><td>SCAQMD</td><td>47.4</td></tr><tr><td>VCAPCD</td><td>16.8</td></tr><tr><td>Santa Barbara County APCD</td><td>35.6</td></tr><tr><td>San Luis Obispo County APCD</td><td>15.2</td></tr><tr><td>Monterey Bay Unified APCD</td><td>25.4</td></tr><tr><td>Bay Area AQMD</td><td>25.1</td></tr><tr><td><b>TOTAL</b></td><td><b>165.5</b></td></tr></table> <p>The CARB reviewed the methodology used to calculate the estimated emission reductions and found it to be reasonable. However, the CARB indicated that, “there is not yet a consensus on the estimated emission reductions from the mitigation proposal and that the USEPA’s estimates are less than those presented here.” (Fletcher 2007). A copy of the CARB memorandum is provided as Appendix G9.</p> <p>The USEPA conducted its own review of the retrofit projects; based on the information submitted by the Applicant, the USEPA determined that the following emission reductions can be expected along the routes traveled by the tugs:</p> <p><i>Emission Reductions</i></p> <table><tr><td><u>Local Air District</u></td><td><u>(tons per year)</u></td></tr><tr><td>SCAQMD</td><td>33.15</td></tr><tr><td>VCAPCD</td><td>11.47</td></tr><tr><td>Santa Barbara County APCD</td><td>25.11</td></tr><tr><td>San Luis Obispo County APCD</td><td>10.84</td></tr><tr><td>Monterey Bay Unified APCD</td><td>18.09</td></tr><tr><td>Bay Area AQMD</td><td>17.99</td></tr><tr><td><b>TOTAL</b></td><td><b>116.65</b></td></tr></table>	<u>Local Air District</u>	<u>(tons per year)</u>	SCAQMD	47.4	VCAPCD	16.8	Santa Barbara County APCD	35.6	San Luis Obispo County APCD	15.2	Monterey Bay Unified APCD	25.4	Bay Area AQMD	25.1	<b>TOTAL</b>	<b>165.5</b>	<u>Local Air District</u>	<u>(tons per year)</u>	SCAQMD	33.15	VCAPCD	11.47	Santa Barbara County APCD	25.11	San Luis Obispo County APCD	10.84	Monterey Bay Unified APCD	18.09	Bay Area AQMD	17.99	<b>TOTAL</b>	<b>116.65</b>	
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		<p>Thus, the USEPA's estimate for NO<sub>x</sub> reductions (116.65 tons per year) is less than the Applicant's estimate of NO<sub>x</sub> reductions (165.5 tons per year) by a value of 48.85 tons per year.</p> <p>Further, the CARB staff question the appropriateness of counting the emission reductions in the Bay Area since these reductions would likely not benefit the regions where the Project is located. Excluding the Bay Area emissions would reduce the amount of emission reductions by 25.1 tons per year based on estimates from the Applicant (or 17.99 tons per year based on estimates from the USEPA).</p>	
<p><b>Impact AIR-5:</b> <i>Emissions of Ozone Precursors from Project Vessels Operating in California Coastal Waters</i></p> <p>Emissions of NO<sub>x</sub> and ROC generated from LNG carriers, tugboats, and the crew/supply boat operating in California Coastal Waters could contribute to ambient ozone impacts in the areas located downwind of the Project.</p>	CEQA Class I; NEPA major adverse, long-term	<p><b>AM AIR-5a. Natural Gas on LNG Carriers.</b> The Applicant would use natural gas as the primary fuel in LNG carrier engines, whenever these vessels are berthed at the FSRU and/or operating within California Coastal Waters. A small amount of ultra low sulfur diesel would be used simultaneously as a pilot fuel in LNG carrier engines resulting in a fuel mixture with a natural gas-to-diesel ratio of approximately 99 to 1. All LNG carriers that deliver LNG to the FSRU would be powered exclusively by Wartsila 50DF series dual-fuel electric engines or equivalent dual-fuel electric engines.</p> <p><b>AM AIR-5b. Control Equipment on Support Vessels.</b> The Applicant would use ultra low sulfur diesel as the fuel in the engines on the tugboats and crew/supply boat. The diesel engines on these vessels would be fitted with pollution control equipment including SCR, oxidation catalysts, and particulate filters to reduce emissions. The Applicant assumed a NO<sub>x</sub> control efficiency of 80 percent in developing its emission inventories. The Applicant also expects CO and ROC reductions of 70 percent and 40 percent, respectively. The use of this control equipment would result in emissions comparable to or less than emissions from natural gas-fueled engines.</p> <p><b>MM AIR-5c. Documentation of Engine Specifications.</b> The Applicant shall prepare and maintain documentation that demonstrates implementation of the Applicant's emission reduction measures. The following documents and/or files shall be submitted to the USCG, CSLC, and CARB:</p> <ul style="list-style-type: none"> <li>Final design documents for the Project crew/supply boat and tug engines, including engine specifications, air pollution control equipment specifications, and associated manufacturer/vendor emission data.</li> </ul>	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<ul style="list-style-type: none"> <li>Documentation certifying that the actual emission rates for the Project crew/supply boat and tug engines are less than or equal to the “controlled” emission rates, in grams per kilowatt-hour, reported for these vessels and documented in Appendix G2. This documentation shall include a report summarizing emission testing of the newly constructed Project crew/supply boat and tug engines for NO<sub>x</sub>, CO, ROC, and PM<sub>10</sub>.</li> <li>Contract documents between the Applicant or its designated representative and LNG carrier operators that specify that all LNG carriers are powered exclusively by Wartsila 50DF series dual-fuel electric engines or equivalent dual-fuel electric engines.</li> <li>Equivalent air emission rates will be defined in grams per kilowatt-hour. Documentation of all LNG carriers that berth at the FSRU, which at a minimum, will include the vessel name, country of origin, engine power plant description, diesel specifications, and emission certifications.</li> </ul>	
<b>Impact AIR-6:</b> <i>Emissions of Ozone Precursors from Project Construction Activities in Federal Waters</i> Project construction activities in Federal waters would generate emissions of NO <sub>x</sub> and ROCs that could contribute to ambient ozone impacts in the areas located downwind of the Project.	CEQA Class III; NEPA minor adverse, short-term	<b>MM AIR-1f. Construction Emissions Reduction Plan.</b> <b>MM AIR-1g. Construction Equipment Documentation.</b>	Less than significant
<b>Impact AIR-7:</b> <i>Temporary Ambient Air Quality Impacts Caused by Criteria Pollutant Emissions from Onshore and Offshore Construction Activities</i> Air pollutants emitted during onshore and offshore Project construction activities would cause temporary increases in ambient pollutant concentrations.	CEQA Class III; NEPA minor adverse, short-term	<b>MM AIR-1f. Construction Emissions Reduction Plan.</b> <b>MM AIR-1g. Construction Equipment Documentation.</b>	Less than significant

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact AIR-8:</b> <i>Ambient Air Quality Impacts Caused by Air Pollutant Emissions from the FSRU and Project Vessels</i> Air pollutants emitted from FSRU equipment and Project vessels associated with operations would cause increases in ambient pollutant concentrations.	CEQA Class III; NEPA minor adverse, long-term	None.	Less than significant
<b>Impact AIR-9:</b> <i>Temporary Ambient Air Quality Impacts Caused by Air Toxic Pollutant Emissions from Onshore and Offshore Construction Activities</i> Air toxic pollutants emitted during onshore and offshore Project construction activities would cause temporary increases in ambient pollutant concentrations.	CEQA Class II, NEPA minor or moderate adverse, short term	<b>MM AIR-1e. USEPA Tier 3 Nonroad Engine Standards.</b> <b>MM AIR-1f. Construction Emissions Reduction Plan.</b> <b>MM AIR-1g. Construction Equipment Documentation.</b>	
<b>MARINE BIOLOGY (Section 4.7)</b>			
<b>Impact BioMar-1:</b> <i>Burial of Sessile Marine Biota</i> Construction activities associated with pipeline and mooring installation could temporarily disturb soft substrate sediments and could bury or crush sessile marine biota such as benthic invertebrates.	CEQA Class III; NEPA minor adverse, short-term	None.	Less than significant
<b>Impact BioMar-2:</b> <i>Temporary Avoidance of the Area Due to Increased Turbidity from Construction Activities Offshore or Accidental HDB Release of Drilling Fluids</i>	CEQA Class II; NEPA minor adverse, short-term	<b>MM WAT-3a. Drilling Fluid Release Monitoring Plan</b> (see Section 4.18, "Water Quality and Sediments," and Appendix D1).	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
A release of drilling fluids and bentonite into the subtidal environment during HDB could temporarily increase turbidity. Increases in turbidity at the offshore exit point could cause fish to avoid this area.			
<b>Impact BioMar-3:</b> <i>Temporary or Permanent Alteration or Disturbance of Marine Biota or Sensitive Habitats, including EFH</i> Construction and/or operational activities could affect marine biota or alter EFH or sensitive habitats (beach spawning areas or hard bottom substrate), resulting in cessation or reduction of feeding or reproduction, area avoidance, or changes in migration patterns for both non-threatened and endangered and special status species.	CEQA Class II; NEPA moderate or major adverse, short- or long-term	<b>AM BioMar-3a. Construction/Operations Lighting Control.</b> A plan would be developed in consultation with a marine bird expert and submitted for approval by the USCG and the CSLC at least 60 days prior to construction. <b>AM NOI-4a. Construction Noise Reduction Measures</b> (see Section 4.14, "Noise and Vibration"). <b>MM BioMar-3b. Monitoring.</b> If intertidal beach work occurs between February and September, the Applicant shall ensure that a qualified biologist will monitor the beach within 100 feet (30.5 m) of the route during the two weeks prior to installation. If a grunion spawning event occurs during the two weeks prior to construction activities, installation will be delayed until the grunion eggs have hatched. A qualified biologist shall determine the day in which construction can begin again after the spawning event. <b>MM BioMar-3c. Avoidance.</b> The Applicant shall ensure that any unexpected hard bottom habitats encountered during construction will be avoided. <b>MM NOI-1a. Efficient Equipment Usage</b> (see Section 4.14, "Noise and Vibration").	Less than significant
<b>Impact BioMar-4:</b> <i>Construction or Operation Vessels Act as an Attractive Nuisance or Disrupt Marine Mammal Behavior or Migrations</i> Construction or operational activities could alter sensitive habitats such that marine mammal reproduction could be reduced, prey species could be eliminated, or animals might avoid an area.	CEQA Class III; NEPA moderate or major adverse, short- or long-term	None.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact BioMar-5:</b> <i>Noise Disrupting Marine Mammal Behavior</i> Noise from construction and operation vessels or equipment could disrupt migrations; interfere with or mask communications, prey and predator detection, and/or navigation; cause adverse behavioral changes; or result in temporary or permanent hearing loss.	CEQA Class I; NEPA major adverse, long-term	<b>AM BioMar-9a. Avoid Offshore Construction during Gray Whale Migration Season.</b> <b>AM BioMar-9b. Marine Mammal Monitoring.</b> <b>MM BioMar-5a. Noise Reduction Design.</b> The Applicant shall work with marine architects, acoustic experts and mechanical engineers and the USCG, among others, to design the FSRU and its equipment to reduce, to the maximum extent feasible, the output of cumulative noise from the facility. <b>MM BioMar-5b. Acoustic Monitoring Plan.</b> The Applicant shall prepare an acoustic monitoring plan to obtain site-specific baseline data and empirical data prior to and during LNG operations. <b>MM BioMar-5c. Helicopter Altitude.</b> The Applicant shall ensure that helicopters maintain a flight altitude of at least 2,500 feet (762 m), except during takeoff and landing. <b>MM NOI-1a. Efficient Equipment Usage</b> (see Section 4.14, "Noise and Vibration").	Significant
<b>Impact BioMar-6:</b> <i>Mortality and Morbidity of Marine Biota from Spills</i> Although rare, an accidental release of a significant amount of oil or fuel during construction or operation, or LNG spills or a natural gas leak from subsea pipelines, could cause morbidity or mortality of marine biota, including fish, invertebrates, seabirds, and special status species such as sea turtles, through direct contact or ingestion of the material.	CEQA Class I; NEPA major adverse, long-term	<b>AM PS-1a. Applicant Engineering and Project Execution Process</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>AM PS-1b. Class Certification and a Safety Management Certificate for the FSRU</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>AM PS-1c. Periodic Inspections and Surveys by Classification Societies</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>AM PS-1d. Designated Safety Zone and Area to be Avoided</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>AM MT-3a. Patrol Safety Zone</b> (see Section 4.3, "Marine Traffic"). <b>MM PS-1e. Cargo Tank Fire Survivability</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-1f. Structural Component Exposure to Temperature Extremes</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-1g. Pre- and Post-Operational HAZOPs</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis").	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact BioMar-7:</b> <i>Discharge of Bilge Water, Gray Water, and Deck Runoff</i> An accidental discharge of untreated bilge water, gray water, or deck runoff from the FSRU or from the LNG carriers could result in the release of contaminants into the marine environment. A release of contaminants could cause mortality or morbidity of fish and/or benthic communities, and would have the potential to adversely affect special status species.	CEQA Class III; NEPA moderate or major adverse, short- or long-term	None.	Less than significant
<b>Impact BioMar-8:</b> <i>Release of LNG, Natural Gas, Fuel, or Oil Causes Injury or Mortality of Marine Mammals</i> A release of LNG, natural gas, fuel, or oil could cause injury or mortality of marine mammals through direct contact or ingestion of the material, and would have the potential to adversely affect special status species.	CEQA Class I; NEPA major adverse, long-term	<b>AM PS-1a. Applicant Engineering and Project Execution Process</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>AM PS-1b. Class Certification and a Safety Management Certificate for the FSRU</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>AM PS-1c. Periodic Inspections and Surveys by Classification Societies</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>AM PS-1d. Designated Safety Zone and Area to be Avoided</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>AM MT-3a. Patrol Safety Zone</b> (see Section 4.3, "Marine Traffic"). <b>MM PS-1e. Cargo Tank Fire Survivability</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-1f. Structural Component Exposure to Temperature Extremes</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-1g. Pre- and Post-Operational HAZOPs</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM MT-3f. Live Radar and Visual Watch</b> (see Section 4.3, "Marine Traffic").	Significant



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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact BioMar-9:</b> <i>Collision between Project Vessels and Marine Mammals or Sea Turtles</i> Construction and operational vessels could collide with marine mammals or sea turtles or other special status species resting on the ocean surface, resulting in injury or mortality.	CEQA Class III; NEPA moderate or major adverse, short- or long-term	<b>AM BioMar-9a. Avoid Offshore Construction During Gray Whale Migration Season.</b> The Applicant would conduct offshore construction activities outside the gray whale migration season (June 1 through November 30). <b>AM BioMar-9b. Marine Mammal Monitoring.</b> All construction vessels would carry two qualified marine monitors and all operational vessels would carry one qualified marine monitor to provide a 360-degree view and watch for and alert vessel crews of the presence of marine mammals and sea turtles during construction activities.	Less than significant
<b>Impact BioMar-10:</b> <i>Entanglement of Marine Mammals, Sea Turtles, and Other Special Status Species</i> Marine mammals or sea turtles or other special status species could become entangled in construction or operation equipment, causing injury or mortality.	CEQA Class II; NEPA moderate or major adverse, short- or long-term	<b>AM BioMar-9b. Marine Mammal Monitoring.</b> <b>MM BioMar-10a. Deployment of Potentially Entangling Material.</b> The Applicant shall ensure that the vessel operator deploys material that has the potential for entangling marine mammals or sea turtles only as long as necessary to perform its task, and then immediately removes such material from the Project site. <b>MM BioMar-10b. Notification.</b> In the unlikely event that a marine mammal or sea turtle is entangled, the Applicant shall require the vessel operator to immediately notify the stranding coordinator at NOAA Fisheries in Long Beach and the Santa Barbara Marine Mammal Center so that a rescue effort may be initiated.	Less than significant
<b>Impact BioMar-11:</b> <i>Discharge of Ballast Water Potentially Containing Exotic Species</i> A release of ballast water containing exotic species could introduce exotic species that directly compete with native organisms, affecting the viability of native species, including special status species.	CEQA Class III; NEPA moderate or major adverse, short- or long-term	None.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact BioMar-12:</b> <i>Increase/Decrease in Fish Abundance or Commercially Important Benthic Species</i> Commercially important fish species could potentially avoid the Project site due to increased human activity and Project-related noise. Additionally, fish and other benthic species could be attracted to the low relief habitat provided by the subsea pipeline, decreasing abundance in other heavily fished areas.	CEQA Class III; NEPA moderate or major adverse or beneficial, short- or long-term	None.	Less than significant
<b>TERRESTRIAL BIOLOGY (Section 4.8)</b>			
<b>Impact TerrBio-1:</b> <i>Temporary Increase in Sedimentation</i> Construction activities could cause a temporary increase in sedimentation and soil erosion and expose contaminated soils during trenching activities, which could cover or damage plants, including special status species. The HDB procedures to install the pipelines beneath Ormond Beach may present remote potential for drilling fluid seepage. These construction methods could cause habitat degradation for sensitive and special status plant species or wetlands.	CEQA Class II; NEPA minor adverse, short-term	<b>AM TerrBio-1a. Erosion Control.</b> To minimize sedimentation, the Applicant or its designated representative would implement erosion control measures during construction. <b>MM TerrBio-1b. Spill Containment/Management.</b> The Applicant or its designated representative shall implement measures to control and manage spills. <b>MM WAT-3a. Drilling Fluid Release Monitoring Plan</b> (see Section 4.18, "Water Quality and Sediments"). <b>MM WAT-4a. Strategic Location for Drilling Fluids and Cuttings Pit</b> (see Section 4.18, "Water Quality and Sediments").	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<p><b>Impact TerrBio-2:</b> <i>Temporary or Permanent Impacts Regarding Construction, Operation, and Maintenance Effects on Rare and Special Status Plants</i></p> <p>Upland vegetation removal during onshore pipeline construction, maintenance, and repair activities could result in the loss of special status plants.</p>	<p>CEQA Class II; NEPA major or moderate adverse, short- or long-term</p>	<p><b>AM TerrBio-2a. Additional Pre-Construction Plant Surveys.</b> The Applicant or its designated representative would conduct additional pre-construction surveys to further define the location of special status species identified during the spring and summer 2005 surveys. The surveys would be conducted according to survey protocols established by the USFWS or the CDFG.</p> <p><b>AM TerrBio-2b. Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP).</b> Surveys would be conducted within any areas potentially impacted by Project activities during construction or operation where special status species potentially occur. Results of the surveys would be used to develop a BRMIMP, which the Applicant would implement.</p> <p><b>AM TerrBio-2c. Employee Environmental Awareness Program (EEAP).</b> The Applicant or its designated representative would conduct an employee awareness program before groundbreaking to explain the applicable endangered species laws and any endangered species concerns to contractors working in the area. The EEAP would also include: trash removal, policies regarding habitat protection measures, traffic management and site safety.</p> <p><b>AM TerrBio-2d. Biological Monitoring.</b> The Applicant or its designated representative would use a qualified biological monitor to conduct the EEAP program and on-site biological monitoring.</p> <p><b>AM TerrBio-2e. Confine Activity to Identified Right-of-Way (ROW).</b> The Applicant or its designated representative would limit all proposed roadway construction to the existing roadway surface wherever special status plant species or habitats occur adjacent to the roadway.</p> <p><b>MM TerrBio-2f. Riparian Avoidance and Restoration.</b> The Applicant or its designated representative shall avoid, minimize, and compensate for impacts on riparian habitat during construction due to trenching or open cut crossings of waters of the United States.</p> <p><b>MM TerrBio-2g. Tree Avoidance and Replacement.</b> The Applicant or its designated representative shall, to the extent possible, avoid, minimize, and compensate for impacts on trees.</p>	<p>Less than significant</p>

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact TerrBio-3:</b> <i>Temporary or Permanent Changes to Wetlands or Waters of the United States during Construction</i> Construction (such as trenching) in wetlands or waters of the United States could remove vegetation, including special status species, disrupt the hydrology of the wetlands within and adjacent to the construction area, or alter the habitat for special status plant species.	CEQA Class II; NEPA major or moderate adverse, short- or long-term	<b>AM WAT-6b. Spill Response Plan.</b> The Applicant or its designated representative would prepare a spill response plan to protect surface water at and near the surface water crossings. This plan would be incorporated into the SWPPP as a requirement of the construction storm water NPDES permit and the SPCC Plan. The plan would identify specific measures to prevent, contain, and clean up any spills that could enter surface water pathways. <b>MM TerrBio-3a. Avoid, Minimize, or Reduce Impacts on Wetlands.</b> Impacts on wetlands or waters of the United States shall be avoided, minimized, or reduced. <b>MM TerrBio-2f. Riparian Avoidance and Restoration.</b>	Less than significant
<b>Impact TerrBio-4:</b> <i>Permanent Impact Caused by Noxious Weed Invasion</i> Construction-related disturbance could provide an opportunity and seedbed for the invasion of weeds, which could adversely affect special status plant species or habitats and upland vegetation.	CEQA Class III; NEPA major or moderate adverse, short- or long-term	<b>AM TerrBio-4a. Weed Management.</b> The Applicant or its designated representative would implement measures to prevent the spread of invasive weeds.	Less than significant
<b>Impact TerrBio-5:</b> <i>Direct Permanent Impact on Wildlife Mortality</i> Construction activities associated with pipeline installation, staging areas, HDD or HDB locations, and access roads could cause the mortality of small mammals, reptiles, and other less-mobile species. Direct mortality could also be associated with increased human activity, particularly involving wildlife habitat removal and animal/vehicle collisions.	CEQA Class II; NEPA major or moderate adverse, long-term	<b>AM TerrBio-2c. Employee Environmental Awareness Program (EEAP).</b> <b>AM TerrBio-2d. Biological Monitoring.</b> <b>MM TerrBio-5a. Pre-Construction Wildlife Surveys.</b> To minimize the potential for causing mortality of local wildlife, the Applicant or its designated representative shall engage a qualified wildlife biologist to conduct additional pre-construction surveys in advance of any vegetation clearing, or excavation or other activity that causes disturbance to surface soils.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>CULTURAL RESOURCES (Section 4.9)</b>			
<b>Impact CULT-1:</b> <i>Marine Archaeological Sites and Artifacts</i> The Project could violate cultural resource standards or cause an adverse change in archaeologically significant resources in offshore Project areas.	CEQA Class III; NEPA major adverse, long-term	<b>AM CULT-1a. Marine Archaeological Surveys.</b> Additional marine archaeological surveys would be performed to confirm the location of and gather further information on the submerged objects determined to be subject to potential impact from the Project. Shipwrecks or other underwater cultural resources identified as culturally significant would be avoided. Pipelaying barges would use dynamic positioning except near shore, where normal anchoring could occur (as identified in the Applicant's Anchor Mitigation Plan for HDB Nearshore Pipeline Project Marine Operations).	Less than significant
<b>Impact CULT-2:</b> <i>Native American Values</i> The Project could violate cultural resource standards by impacting resources that are of value to Native American culture and heritage, particularly the Ventura Chumash.	CEQA Class III; NEPA major adverse, long-term	<b>AM CULT-2a. Site Avoidance.</b> The Applicant would avoid identified sites and adhere to State of California burial remains legislation and the Native American Graves Protection and Repatriation Act as applicable. <b>AM CULT-2b. Native American Values.</b> The Applicant would incorporate the following measures to avoid impacts on Native American values: <ul style="list-style-type: none"> <li>• Native American monitoring would be included in Project-related activities that result in disturbance of surface and subsurface components of archaeological sites;</li> <li>• Artifacts recovered from archaeological sites would be curated at a qualified museum or historical facility that allows access to Native Americans;</li> <li>• Procedures specified in CEQA Guidelines 15064.5(e) and Health and Safety Code § 7050.5 and Public Resources Code § 5097.98 would be implemented if human remains are discovered in the Project area; and</li> <li>• Significant oak trees and other plants and animals of local Native American concern would be avoided to the extent possible, and impacts on native plants would be minimized by allowing collection of herbs before construction and by relocating and replanting grasses. If such resources are unavoidable during Project construction or maintenance, further investigations in the form of complete documentation would be implemented. All such investigations would include Native American participation where mandated by Federal, State, and local law.</li> </ul> <b>AM CULT-1a. Marine Archeological Surveys.</b> <b>AM CULT-3a. Archaeological Monitoring.</b>	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<b>AM CULT-3b. Unanticipated Discovery Plan.</b> <b>AM CULT-3c. Pre-Construction Pedestrian Survey</b> (onshore only).	
<b>Impact CULT-3: Terrestrial Historic or Archaeological Resources</b> The Project could violate cultural resource standards, cause an adverse change in the significance of a historic or archaeological resource, or disturb human remains in onshore Project areas.	CEQA Class III; NEPA major adverse, long-term	<b>AM CULT-3a. Archaeological Monitoring.</b> A qualified archaeologist would monitor all construction within 328 feet (100 m) of archaeological sites and areas with high potential for the occurrence of sites buried under alluvium, including the shoreline crossing. If sites are identified during the monitoring phase of construction, the archaeologist would be empowered to stop all construction activities in the vicinity of the find and evaluate the resource. Such evaluation would require a Phase 2 subsurface testing and evaluation program. If remains prove to be significant and site avoidance cannot be implemented through Project redesign, a Phase 3 data recovery program would be implemented to mitigate impacts.  <b>AM CULT-3b. Unanticipated Discovery Plan.</b> To ensure compliance with mitigation measures, a cultural resources management plan has been developed pursuant to all relevant Federal, State, and local cultural resources guidelines and criteria, including NEPA § 101(b), and CEQA Guidelines §§ 15064.5(e) and (f). The plan includes an overview of the regulations that apply in the event of an unanticipated discovery, and identifies specific steps to be undertaken for treatment or discovery of remains. The plan covers: <ul style="list-style-type: none"> <li>• Authority to halt construction;</li> <li>• Procedures when skeletal remains are found;</li> <li>• Protection while awaiting recommendations from most likely descendants;</li> <li>• Treatment as recommended by most likely descendants;</li> <li>• Reporting; and</li> <li>• Curation of archaeological material not associated with human remains.</li> </ul> <b>AM CULT-3c. Pre-Construction Pedestrian Survey.</b> The Applicant would employ a qualified archaeologist to conduct a pre-construction pedestrian survey over any segments of the route that have not already been surveyed. If unanticipated surface evidence of an archaeological site is observed, the Applicant would follow the Unanticipated Discovery Plan.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>ENERGY AND MINERALS (Section 4.10)</b>			
<b>ENE-1: Access to Oil and Gas Resources</b> The Project may temporarily restrict access to or availability of oil and gas resources.	CEQA Class III; NEPA minor adverse, short-term	None.	Less than significant
<b>ENE-2: Create Significant Effects on Local or Regional Energy Supplies</b> The Project would have a beneficial impact on local and regional energy supplies.	CEQA Class IV; NEPA beneficial	Not applicable.	Beneficial impact
<b>GEOLOGY (Section 4.11)</b>			
<b>Impact GEO-1: Worsens Existing Unfavorable Geologic Conditions and/or Releases Toxic or Other Damaging Material into the Environment</b> Construction activities could temporarily worsen existing unfavorable geologic conditions.	CEQA Class II; NEPA moderate or major adverse, long-term	<b>AM GEO-1a. Drilling Location.</b> For HDB activities at the shore crossing, the Applicant or its representative would locate the onshore entry and offshore exit points of the drilling outside of the area affected by normal storms. In addition, the pipeline would be buried deep enough to prevent surfacing due to storm-induced erosion. <b>AM TerrBio-1a. Erosion Control</b> (see Section 4.8, "Biological resources – Terrestrial"). <b>MM GEO-1b. Backfilling, Compaction, and Grading.</b> Following construction of the onshore pipelines, the Applicant or its designated representative shall properly backfill and compact the right-of-way as defined by standard construction practices, grade the trench to preexisting contours and revegetate/restore the landscape to preexisting conditions to prevent preferential flow paths, erosion, or subsidence. <b>MM WAT-3a. Drilling Fluid Release Monitoring Plan</b> (see Section 4.18, "Water Quality and Sediments").	Less than significant
<b>Impact GEO-2: Cause a Loss of a Unique Paleontological Resource</b> Construction activities could disturb or destroy paleontological resources; such impacts are typically permanent.	CEQA Class II; NEPA moderate or major adverse, long-term	<b>MM GEO-2a. Inspection.</b> The Applicant or its designated representative shall have a qualified paleontologist complete a paleontological inspection prior to excavating in the suspect areas.	Less than significant

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact GEO-3:</b> <i>Expose People or Structures to Adverse Effects Due to Direct Rupture along Fault Lines, Ground Shaking, or Seismic-related Ground Failure</i> Damage to pipelines or other facilities could occur due to direct rupture (ground offset) along fault lines.	CEQA Class II; NEPA moderate or major adverse, short-term	<p><b>AM GEO-3a. Avoidance.</b> The Applicant would avoid crossing known active fault zones, where possible.</p> <p><b>AM GEO-3b. Pipeline Flexibility.</b> Except for the shore crossing, where the pipelines would be installed beneath Ormond Beach, the Applicant would install the offshore pipelines directly on the seabed surface to allow enhanced flexibility (compared with a buried pipeline) and to help them withstand movement caused by fault rupture. Under normal conditions (not due to mass movement) some sediment may cover the pipelines; however, minor sediment should not affect the flexibility of the pipelines. Pipeline routes would also be designed to cross potential faults at as much as a right angle as possible if determined by site-specific conditions to be the most appropriate design. Offset of pipelines crossing strike-slip or normal faults at right angles typically induces tension in the pipe, rather than compression. Pipelines can withstand significant offset when in tension.</p> <p><b>MM GEO-3c. Geotechnical Studies.</b> The Applicant, as a condition of any lease, shall complete final site-specific geotechnical and seismic hazard studies, to be approved by the CSLC and USCG or MARAD, as appropriate, prior to final pipeline design and construction.</p> <p><b>MM GEO-3d. Design and Operational Procedures.</b> The Applicant shall evaluate a larger trench, engineered backfill, thicker wall pipe, and telemetric control for final pipeline design.</p> <p><b>MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis").</p>	Less than significant



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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact GEO-4:</b> <i>Cause Severe Damage to Project Components as a Direct Consequence of a Geologic Event, Releasing Toxic or Other Damaging Materials into the Environment</i> Ground shaking from earthquakes, which is of a transitory and sporadic nature, could damage Project components.	CEQA Class II; NEPA moderate or major adverse, short-term	<b>MM GEO-4a. Design for Ground Shaking.</b> The Applicant shall employ proper seismic design, including but not limited to the design guidelines in the publications <i>Guidelines for the Design of Buried Steel Pipe</i> , <i>Guidelines for the Seismic Design of Oil and Gas Pipeline Systems</i> , and the American Society of Mechanical Engineers' <i>Managing System Integrity of Gas Pipelines</i> .	Less than significant
<b>Impact GEO-5:</b> <i>Damage a Pipeline due to Landslides, Mudflow, Lateral Spreading, Subsidence, Liquefaction, or Collapse as a Result of Locating the Project on a Geologic Unit or Soil that is Unstable</i> Mass movement, which is of a transitory and sporadic nature, could damage pipelines or structures.	CEQA Class III; NEPA moderate or major adverse, short- or long-term	<b>AM GEO-5a. Avoid Areas of Mass Movement.</b> To the extent possible, the Applicant would avoid areas of soil susceptible to mass movement and areas of steeper slopes. <b>MM GEO-3c. Geotechnical Studies.</b> <b>MM GEO-3d. Design and Operational Procedures.</b>	Less than significant
<b>Impact GEO-6:</b> <i>Damage to Pipelines from Tsunamis</i> Tsunamis, which are transitory and sporadic in nature, could damage nearshore pipelines or facilities due to the typical force and erosive nature of these storms.	CEQA Class III; NEPA moderate or major adverse, short-term	<b>AM GEO-6a. Pipeline Burial.</b> The pipeline at the shore crossing would be buried at least 50 feet (15.2 m) below the surface of the beach and deeply enough below sea level to minimize the potential of frac-outs. This will also avoid potential damage from tsunamis.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>HAZARDOUS MATERIALS (Section 4.12)</b>			
<b>Impact HAZ-1:</b> <i>Release of Oil or Hazardous Materials and Contamination of Marine Environment due to Offshore Operations</i> Improper handling of hazardous materials or leaks in containers on the FSRU and support vessels could result in a release to the marine environment or exposure of workers or the public.	CEQA Class III; NEPA major or moderate adverse, short- or long-term	None.	Less than significant
<b>Impact HAZ-2:</b> <i>Release of Oil or Hazardous Materials Spills Could Result in Soil Contamination due to Pipeline Construction Activities</i> Activities associated with site preparation, construction, and drilling, as well as operations and maintenance activities, could result in an accidental spill of hazardous materials or oil and exposure of workers or the public.	CEQA Class II; NEPA major or moderate adverse, short- or long-term	<b>MM HAZ-2a. Maintain Equipment.</b> The Applicant, or its designated representative, shall maintain equipment in good operating condition to reduce the likelihood of fuel or oil line breaks and leakage. Any vehicles with chronic or continuous leaks shall be removed from the construction site and repaired before being returned to operation. <b>MM HAZ-2b. Hazardous Material Contingency Plan.</b> The Applicant, or its designated representative, shall prepare a detailed hazardous material contingency plan per RCRA and the Hazards Waste Control Act that describes how the contaminated soil and/or groundwater is to be handled and disposed pursuant to law, as well as training for personnel. This plan must receive prior approval from the USEPA or the DTSC before construction begins. <b>MM WAT-3a: Drilling Fluid Release Monitoring Plan (see Section 4.18, "Water Quality and Sediments").</b>	Less than significant
<b>Impact HAZ-3:</b> <i>Release of Existing Contaminants from Sediments, Soils, or Groundwater</i> Construction activities could unearth existing contaminated sites onshore and offshore, causing potential health hazards to construction workers, the public, and marine and terrestrial ecology.	CEQA Class II; NEPA major or moderate adverse, short- or long-term	<b>MM HAZ-3a. Consult with DTSC Regarding Cleanup of Soil and Groundwater at Whittaker-Bermite Site (MP 0.2 to 1.25).</b> Soil contamination in Operable Unit 2 immediately adjacent to or within the proposed pipeline route is expected to be cleaned up by 2006 and certified as such by DTSC. The Applicant or its designated representative shall coordinate with the DTSC to identify potential soil and/or groundwater contamination hazards present in the proposed pipeline alignment and to determine whether additional surveys or screening-level sampling are warranted in areas to be disturbed by pipeline construction prior to any construction. To confirm that the appropriate level of coordination occurs with	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		the DTSC, the Applicant, or its designated representative, shall submit a letter detailing the results of consultation with the DTSC and any specific measures that are to be implemented during construction to the CSLC, with a copy to the DTSC, 60 days prior to initiating construction. The CSLC would assist the Applicant, or its designated representative, with DTSC consultation, if requested by the Applicant, or its designated representative. <b>MM HAZ-3b. Onshore Surveys.</b> In areas where the proposed pipeline alignments diverge from existing ROWs, the Applicant or its designated representative shall conduct additional surveys to identify potential areas of soil and/or groundwater contamination. If contaminated sites are identified, the Applicant or its designated representative shall implement its Hazardous Material Contingency Plan (see MM HAZ-2b) and implement best management practices.	
<b>Impact HAZ-4:</b> <i>Potential Disturbance or Detonation of Unexploded Ordnance due to Onshore or Offshore Construction</i> Offshore pipeline installation and onshore pipeline construction activities could encounter UXO, causing an explosion that could result in serious injuries or fatalities to workers or the public, and—for offshore locations—serious injuries or fatalities to marine life from subsurface blast pressures.	CEQA Class II; NEPA major or moderate adverse, short- or long-term	<b>MM HAZ-4a. Offshore Surveys.</b> The Applicant shall conduct additional surveys at the offshore pipeline installation within and near the Point Mugu Sea Range to locate visible and shallowly buried UXO that might be disturbed by pipeline installation and avoid identified UXO or develop, in consultation with the U.S. Navy, procedures to eliminate such UXO. <b>MM HAZ-4b. Coordination with the California Department of Toxic Substances Control.</b> The Applicant, or its designated representative, shall coordinate with the DTSC and notify the City of Santa Clarita before conducting any surveys or construction activities at parts of the Line 225 Pipeline Loop route on or near the Whittaker-Bermite site to determine whether additional UXO surveys would be warranted and shall ensure that those surveys are conducted if deemed necessary. If UXO is present, the Applicant will recover and dispose it as required by DTSC prior to beginning construction. The Applicant, or its designated representative, shall submit a letter to the CSLC and the USCG with a copy to the DTSC documenting the outcome of coordination and the status of follow-up 60 days prior to beginning construction.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>LAND USE (Section 4.13)</b>			
None.		<b>AM LU-1. Construction of Center Road Pipeline in Future ROW Along McWane Boulevard if McWane Boulevard is Approved and Constructed Prior to the Construction of the Center Road Pipeline.</b> The Draft Ormond Beach Specific Plan in the City of Oxnard identifies McWane Boulevard as a future east-west public street that may be located south of Hueneme Road. In the event that McWane Boulevard is approved and constructed prior to the construction of the Center Road Pipeline, the Applicant shall locate the Center Road Pipeline within the ROW for McWane Boulevard. The pipeline shall run north from the metering station at Ormond Beach, turn east along McWane Boulevard to Arnold Road, turn north along Arnold Road to Hueneme Road, and turn east along Hueneme Road to resume the proposed alignment of the Center Road Pipeline.	Less than significant
<b>Impact LU-1: Changes in Existing Land Use</b> Implementation of the Project would change an existing land use.	CEQA Class III; NEPA moderate or major adverse, long-term	<b>AM AGR-1a. Compensation for Temporary and Permanent Loss of Agricultural Land, Crop Loss, Future Loss of Production, and Other Negative Impacts</b> (see Section 4.5, "Agriculture and Soils").	Less than significant
<b>Impact LU-2: Disruption to Adjacent Properties</b> Construction may cause temporary disturbances or nuisances to nearby residents and businesses or to special land uses.	CEQA Class II; NEPA minor adverse, short-term	<b>AM LU-2a. Minimize Disruption for Residences, Businesses, and Special Land Uses in or near the Construction Area.</b> The Applicant or its designated representative would minimize disruption in residential and business areas during construction. <b>AM LU-2b. Reduce Disruption for Residences Within 25 Feet (7.6 m) of the Construction Work Area.</b> The Applicant or its designated representative would further reduce disruption in residential areas during construction. AM AIR-2a. Fugitive Dust Controls (see Section 4.6, "Air Quality"). <b>MM LU-2c. Coordinate with Other Utilities.</b> Before construction, coordinate with other utility service providers to ensure conflicts with other maintenance or construction activities are minimized during construction. <b>MM NOI-6a. Post Signs</b> (see Section 4.14, "Noise and Vibration"). <b>MM NOI-6b. Equipment Location</b> (see Section 4.14, "Noise and Vibration"). <b>MM TRANS-1a. Traffic Control Plans</b> (see Section 4.17, "Transportation").	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>NOISE (Section 4.14)</b>			
<b>Offshore</b>			
<b>Impact NOI-1: Noise Generated During the Installation of the FSRU and Offshore Pipelines</b> Noise generated by vessels or equipment during installation of the mooring system, FSRU, and offshore pipelines could result in temporary increases in noise levels in the area, which could impact sensitive noise receptors such as recreational boaters or fishers.	CEQA Class II; NEPA minor adverse, short-term	<b>AM MT-1a. Safety Vessel Warnings</b> (see Section 4.3, "Marine Traffic"). <b>MM NOI-1a. Efficient Equipment Usage.</b> The Applicant shall: <ul style="list-style-type: none"> <li>• Operate construction equipment only on an as-needed basis during this period, and maintain it to the manufacturer's specifications. This will serve to reduce the number of noise producing events.</li> <li>• Ensure that equipment engine covers are in place and mufflers are in good working condition for the installation of the mooring system, FSRU, and offshore pipeline.</li> <li>• Require that prospective contractors for the offshore pipeline installation address noise reduction measures in their respective bid proposals, such as (1) the extent to which they will use engines with lower noise ratings, (2) phased construction activities to reduce simultaneous operations of engines, and (3) all other practices they would follow to reduce equipment noise emissions.</li> </ul> <b>MM MT-1c. Notices to Mariners</b> (see Section 4.3, "Marine Traffic").	Less than significant
<b>Impact NOI-2: Long-Term Noise Generated During FSRU Operations</b> Recreational boaters and fishers at certain distances from the facility could hear noise generated by FSRU operations over the long-term.	CEQA Class I; NEPA moderate adverse, long-term	<b>MM BioMar-5a. Noise Reduction Design.</b> The Applicant shall work with marine architects, acoustic experts and mechanical engineers and the USCG, among others, to design the FSRU and its equipment to reduce, to the maximum extent feasible, the output of cumulative noise from the facility.	Significant
<b>Impact NOI-3: Temporary Noise Generated by Support Vessels During Offshore Operations</b> LNG carriers, crew boats and supply vessels, or helicopters could temporarily increase noise levels for sensitive receptors, such as recreational boaters and fishers during operations.	CEQA Class I; NEPA moderate adverse, long-term	<b>AM NOI-3a. Daytime Operations.</b> The Applicant would operate crew boats, supply vessels, and helicopters during daytime hours, except during emergencies. The operation of these vessels would be less disturbing to receptors during daytime hours when there is greater ambient background noise and people are not typically involved in activities that require lower noise levels.	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Onshore</b>			
<b>Impact NOI-4: Temporary Noise Generated During Construction using Horizontal Directional Boring (HDB), Horizontal Directional Drilling (HDD), or Other Drilling Techniques</b> HDB at the shore crossing and HDD or other drilling techniques at onshore waterways and intersection crossings could temporarily increase noise levels for sensitive receptors. Noise levels could exceed local noise ordinances or permit conditions.	CEQA Class I; NEPA moderate adverse, short-term	<p><b>AM NOI-4a. Construction Noise Reduction Measures.</b> The Applicant shall monitor noise levels to comply with applicable regulations, enclose power units, implement noise barriers, enclose mud pumps and engines, enclose generator sets, partially enclose mud mixing, provide engine compartment treatments, modify backup alarms, orient loading bins, restrict use of mobile equipment, enclose light set engines, use temporary hay bales as noise barriers, and place silencers on engines where possible.</p> <p><b>MM NOI-4b. Use Noise Blankets.</b> During Project construction noise blankets shall be used to fully enclose equipment associated with boring where residences occur within 2,000 feet (610 m) and work occurs after 6 p.m.</p> <p><b>MM NOI-4c. Limit Heavy Equipment Activity Near Residences.</b> Heavy equipment activity adjacent to residences shall be limited to the shortest possible period required to complete pipeline installation.</p> <p><b>MM NOI-4d. Cover the Equipment Engine.</b> The equipment engine shall be covered and the Applicant shall ensure that mufflers are in good working condition.</p> <p><b>MM NOI-4e. Establish Telephone Hotline.</b> A phone number shall be established and publicized for members of the public to call should they have a noise complaint. Upon receiving a complaint, noise monitors will measure the levels and ensure that all appropriate noise controls are being implemented.</p> <p><b>MM NOI-4f. Establish Procedures.</b> The Applicant or its designated representative shall establish procedures to stop or curtail work or add additional measures to respond to any noise complaints or exceedances of any ordinances.</p>	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact NOI-5:</b> <i>Temporary Vibration Generated During Horizontal Directional Boring (HDB), Horizontal Directional Drilling (HDD), and Pipeline Construction Activities</i> HDB, HDD, boring, trenching, and other construction activities could temporarily create vibration levels at sensitive receptors.	CEQA Class I; NEPA moderate adverse, short-term	<b>AM NOI-4a. Construction Noise Reduction Measures.</b> <b>MM NOI-5a. Restricted Work Hours.</b> The Applicant or its designated representative shall ensure that work hours are restricted for pipeline construction activities, with the exception of HDB, involving motorized equipment from 7 a.m. to 7 p.m. Monday through Saturday. <b>MM NOI 4c. Limit Heavy Equipment Activity Near Residences.</b>	Significant
<b>Impact NOI-6:</b> <i>Noise Generated During Construction of the Onshore Pipeline</i> Site preparation, pipeline installation, and construction of aboveground facilities could temporarily increase noise levels for sensitive receptors, such as schools and residences. Noise levels may exceed county and/or city noise ordinances or permit conditions during the installation of the onshore pipeline and associated structures.	CEQA Class I; NEPA moderate adverse, short-term	<b>AM NOI-4a. Construction Noise Reduction Measures.</b> <b>MM NOI-6a. Post Signs.</b> The Applicant or its designated representative shall post signs along the construction right-of-way with approximate schedule and contact information. <b>MM NOI-6b. Equipment Location.</b> The Applicant or its designated representative shall locate stationary equipment, such as compressors and welding machines, away from the noise receptors to the extent practicable. <b>MM NOI-4c. Limit Heavy Equipment Activity Near Residences.</b> <b>MM NOI-4d. Cover the Equipment Engine.</b> <b>MM NOI-4e. Establish Telephone Hotline.</b> <b>MM NOI-4f. Establish Procedures.</b> <b>MM NOI-5a. Restricted Work Hours.</b>	Significant
<b>Impact NOI-7:</b> <i>Noise Generated by Traveling to the Construction Site</i> Additional vehicular traffic carrying workers, equipment, and materials to the construction sites could temporarily increase noise levels for residences, schools, places of worship, or hospitals.	CEQA Class III; NEPA moderate or major adverse, short-term	None.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>Impact NOI-8:</b> <i>Noise Generated During Onshore Pipeline and Associated Facilities Operations</i> Repair or maintenance operations of the onshore pipelines and associated aboveground facilities may temporarily exceed county and/or city noise ordinances or permit conditions.	CEQA Class II; NEPA minor adverse, long-term	<b>AM NOI-4a. Construction Noise Reduction Measures.</b> <b>MM NOI-4c. Limit Heavy Equipment Near Residences</b> <b>MM NOI-4d. Cover the Equipment Engine.</b> <b>MM NOI-5a. Restricted Work Hours.</b> <b>MM NOI-4f. Establish Procedures.</b> <b>MM NOI-6a. Post Signs.</b> <b>MM NOI-6b. Equipment Location.</b>	Less than significant
<b>RECREATION (Section 4.15)</b>			
<b>Offshore</b>			
<b>Impact REC-1:</b> <i>Temporary Restrictions on Offshore Recreational Boating and Fishing during Construction and Temporary Reductions of Fish Catch</i> Construction activities would temporarily restrict recreational boating and recreational marine fishing.	CEQA Class III; NEPA minor adverse, short-term	None.	Less than significant
<b>Impact REC-2:</b> <i>Restricted Recreational Fishing Due to Area to be Avoided</i> Operational activities could restrict offshore recreational activities because of the creation of a safety zone around the FSRU.	CEQA Class III; NEPA minor adverse, long-term	None.	Less than significant



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<b>Impact REC-3:</b> <i>Reduce the Quality of the Offshore Recreational Experience</i> During Project operations, the presence of the FSRU would alter the recreational experience of recreational boaters, including tourists and visitors on whale-watching trips and other visitors to the CINP.	CEQA Class I; NEPA moderate adverse, long-term	None.	Significant
<b>Onshore</b>			
<b>Impact REC-4:</b> <i>Reduce the Recreational Experiences at or Restrict Access to Ormond Beach</i> Construction or maintenance activities at the shore crossing could temporarily impede recreational uses or degrade recreational experiences at Ormond Beach because of the noise, dust, and light generated during construction and repairs or because of accidental release of drilling fluids or a gas leak.	CEQA Class III; NEPA minor adverse, long-term	None.	Less than significant
<b>Impact REC-5:</b> <i>Reduce or Restrict Access to Parks or Reduce User Enjoyment</i> Construction activities could temporarily restrict access to parks due to increased traffic congestion or other nuisances in the general area of parks in the vicinity of pipeline construction.	CEQA Class II; NEPA minor adverse, long-term	<b>AM REC-5a. Contractor Yard Locations.</b> Contractor yards would be located at least 1 mile (1.6 km) away from park and recreational areas. <b>MM TRANS-1a. Traffic Control Plans</b> (see Section 4.17, "Transportation").	Less than significant

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<b>Impact REC-6:</b> <i>Reduce or Restrict Access to Trails</i> Construction activities for the Line 225 Pipeline Loop would temporarily close the multi-use trails along the South Fork Santa Clara River.	CEQA Class II; NEPA minor adverse, short-term	<b>MM REC-6a. Trail Closure Signage and Information.</b> The Applicant or its designated representative shall post signs and disseminate information to the public about the multi-use trail along the South Fork Santa Clara River stating how long the trail will be closed, when it will be restored, and alternate routes. <b>MM REC-6b. Trail Restoration.</b> The Applicant or its designated representative shall restore the multi-use trail along the South Fork Santa Clara River to its previous condition before construction within 21 days after completion of the section of the pipeline along the trail.	Less than significant
<b>SOCIOECONOMICS (Section 4.16)</b>			
<b>SOCIO-1:</b> <i>Decrease in Catch Revenues for Commercial Fisheries due to Exclusion from Fishing Areas</i> The long-term and temporary exclusion of commercial fishers from fishing grounds could decrease catch revenues for commercial fisheries.	CEQA Class II; NEPA moderate adverse, long-term	<b>AM SOCIO-1a. Compensation for Lost Gear.</b> As a member of the Oil Caucus of the Joint Oil/Fisheries Committee of South Central California, the Applicant would negotiate mitigation for impacts on fishers using guidance from existing Joint Oil/Fisheries Committee guidelines for lost or damaged gear. <b>AM MT-1a. Safety Vessel Warnings</b> (see Section 4.3, "Marine Traffic"). <b>AM MT-1b. Automatic Identification System</b> (see Section 4.3, "Marine Traffic"). <b>AM MT-2b. Established Routes to and from Port Hueneme</b> (see Section 4.3, "Marine Traffic"). <b>AM MT-2c. Compliance with JOFLO Vessel Traffic Corridors</b> (see Section 4.3, "Marine Traffic"). <b>MM SOCIO-1b. Arbitration.</b> If there is a complaint by a fisher related to impacts from the Project, the Applicant shall comply with a mutually agreed-upon settlement between itself and the injured party. If a settlement cannot be reached through voluntary negotiation that is acceptable to both parties, dispute resolution shall be conducted by a mutually agreed-upon arbitrator. The arbitrator shall be compensated by the Applicant. An arbitrator shall become involved if the voluntary negotiation is not concluded within three months.	Less than significant

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>SOCIO-2:</b> <i>Decreased Commercial Fisheries Revenues due to Loss of Fishing Gear</i> The loss of commercial fishing gear from pipelines and supply boat traffic could decrease commercial fisheries revenues.	CEQA Class II; NEPA minor adverse, short-term	<b>AM SOCIO-1a. Compensation for Lost Gear.</b> <b>AM MT-2b. Established Routes to and from Port Hueneme</b> (see Section 4.3, "Marine Traffic"). <b>AM MT-2c. Compliance with JOFLO Vessel Traffic Corridors</b> (see Section 4.3, "Marine Traffic"). <b>MM SOCIO-1b. Arbitration.</b> <b>MM MT-1c. Notices to Mariners</b> (see Section 4.3, "Marine Traffic"). <b>MM MT-1d. Securite Broadcasts</b> (see Section 4.3, "Marine Traffic"). <b>MM MT-1e. Safety Vessel</b> (see Section 4.3, "Marine Traffic").	Less than significant
<b>SOCIO-3:</b> <i>Increase in Regional Fishing Pressure</i> The permanent exclusion of commercial fishing from fishing grounds could increase fishing pressure in other areas or reduce the catch, resulting in negative economic impacts.	CEQA Class III; NEPA minor adverse, long-term	None.	Less than significant
<b>SOCIO-4:</b> <i>Small Increased Demand for Public Services</i> The Project would cause a slight increased demand for public services during construction and operations.	CEQA Class III; NEPA minor adverse, long-term	None.	Less than significant
<b>TRANSPORTATION (Section 4.17)</b>			
<b>TRANS-1:</b> <i>Temporary Increase in Traffic</i> During construction, the addition of the construction-related workforce and material deliveries to and from staging areas could temporarily increase traffic during peak construction periods.	CEQA Class II; NEPA moderate adverse, short-term	<b>MM TRANS-1a. Traffic Control Plans.</b> Two traffic control plans shall be prepared by a registered professional engineer in accordance with the Work Area Protection and Traffic Control Manual (1999): one for the Center Road Pipeline and one for Line 225 Pipeline Loop. <b>MM TRANS-1b. Notification, Schedule Shifts, Carpooling.</b> During construction, the Applicant or its designated representative shall implement best management practices approved by CalTrans and/or the affected local government, such as notification, schedule shifts, and carpooling, to minimize increases in traffic.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>TRANS-2: Temporary Traffic Lane Closures</b> The Project could restrict one or more lanes of major roads, disrupting local traffic flow during peak hours.	CEQA Class II; NEPA moderate adverse, short-term	<b>MM TRANS-1a. Traffic Control Plans</b> (see Impact TRANS-1).	Less than significant
<b>TRANS-3: Temporarily Reduced On-Street Parking Access</b> Construction could temporarily restrict residential on-street parking access.	CEQA Class III; NEPA minor adverse, short-term	None.	Less than significant
<b>TRANS-4: Temporary Closure of Bike Routes</b> Construction could result in temporary closure and/or restricted access to bike paths crossed by the onshore pipelines, which could adversely affect the safety of bicyclists.	CEQA Class II; NEPA moderate adverse, short-term	<b>MM TRANS-4a. Bike Detour Lanes.</b> Where bike paths are closed, the Applicant or its designated representative shall provide an alternative bike route, provide signs and notice of the pending closure at least 30 days prior to commencement of work at the affected location, and ensure that the route remains posted until the access is restored to its pre-construction condition. <b>MM TRANS-4b. Repair Damage to Bike Paths.</b> The Applicant or its designated representative shall restore any bike paths damaged as a result of Project construction to their pre-construction condition within 21 days of completion of the bike route-based portion of each alignment. <b>MM TRANS-1a. Traffic Control Plans</b> (see Impact TRANS-1).	Less than significant
<b>TRANS-5: Damage to Roads During Construction</b> Roads crossed or paralleled by the onshore pipelines, as well as those used to access the Project, could be temporarily damaged by increased traffic and heavy equipment.	CEQA Class II; NEPA minor or moderate adverse, short-term	<b>MM TRANS-5a. Repair Damage to Roads.</b> The Applicant or its designated representative shall repair to pre-construction conditions any damage to roads that occurs as a result of the Project within 21 days of completion of the road-based portion of each alignment or in accordance with local road encroachment permit conditions determined prior to construction, whichever is less. In addition, where a roadway has been rehabilitated within the past five years, the Applicant or its designated representative shall provide a full width overlay after trenching is completed. The Applicant or its designated representative shall negotiate with the appropriate jurisdiction regarding videotaping of existing roadways prior to construction and mitigation fees to be deposited into a trust fund.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<b>WATER (Section 4.18)</b>			
<b>Offshore – Construction/Installation</b>			
<b>WAT-1: Temporary Degradation of Offshore Water Quality due to Accidental Discharges</b> Accidental discharges of petroleum, contaminants, gray water, or sewage from vessels during offshore construction and installation activities could temporarily degrade offshore water quality.	CEQA Class III; NEPA minor or moderate adverse, short-term	None.	Less than significant
<b>WAT-2: Short-Term Increase in Turbidity or Accidental Unearthing of Contaminants during Offshore Construction</b> The installation of the FSRU and subsea pipelines could disturb seafloor sediments or release drill cuttings or fluids, causing a short-term increase in turbidity or accidental unearthing of contaminants.	CEQA Class III; NEPA minor or moderate adverse, short-term	None.	Less than significant
<b>Onshore Construction</b>			
<b>WAT-3: Short-Term Degradation of Surface Water or Groundwater Quality due to Accidental Release of Drilling Fluids</b> Accidental releases of drilling fluids at the shore crossing during construction could degrade surface water or groundwater quality for the short term.	CEQA Class II; NEPA minor or moderate adverse, short-term)	<b>MM WAT-3a. Drilling Fluid Release Monitoring Plan.</b> The Applicant shall implement its Drilling Fluid Release Monitoring Plan to minimize the potential for releases of drilling fluids, to properly clean up drilling fluids in the event of a release, and notify appropriate agencies should a release occur. The plan (see Appendix D1) would incorporate best management practices to reduce the impacts from releases of drilling fluids, including the following: <ul style="list-style-type: none"> <li>• Maintaining containment equipment for drilling fluids on site;</li> <li>• Adding a non-toxic color dye to the drilling fluids to easily and quickly detect release of drilling fluids;</li> <li>• Ensuring that a qualified environmental monitor or suitably trained water quality</li> </ul>	Less than significant

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>specialist is on site full time near sensitive habitat areas during horizontal directional boring activities;</p> <ul style="list-style-type: none"> <li>Stopping work immediately if there is any detection of bentonite seeps into surface water or sensitive habitats, for example, by a loss in pressure or visual observation of changes in turbidity or surface sheen;</li> <li>Reporting all bentonite seeps into waters of the State or sensitive habitat immediately to the Project's resource coordinator, the CSLC, the Los Angeles RWQCB, and the appropriate resource agencies: National Oceanic and Atmospheric Administration Fisheries, U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, the California Department of Water Resources, the California Reclamation Board, the applicable city (Oxnard or Santa Clarita) and county (Ventura or Los Angeles); and</li> <li>Cleaning up and properly disposing of any release of drilling fluids to the satisfaction of regulatory agencies.</li> </ul>	
<b>WAT-4:</b> <i>Short-Term Increase in Erosion due to Construction Activities</i> Boring and trenching at stream crossings, including release of hydrostatic test water, could cause short-term increases in erosion.	CEQA Class II; NEPA minor adverse, short-term	<p><b>AM TerrBio-1a. Erosion Control.</b></p> <p><b>MM WAT-4a. Strategic Location for Drilling Fluids and Cuttings Pit.</b> The Applicant or its designated representative shall ensure that a pit has been excavated at the exit hole to collect and contain the drilling fluids and cuttings. Engineering controls shall be installed to ensure that fluids remain contained in the pit, including:</p> <ul style="list-style-type: none"> <li>Locating the entry pit and exit pit sufficiently far from a stream bank and at a sufficient elevation to avoid inundation by the stream and to minimize excessive migration of groundwater into the entry pit or exit pit;</li> <li>Isolating the entry pit and exit pit with silt fencing to avoid sediment transport into the surface water body;</li> <li>Isolating the spoils storage from the excavation of the entry pit using silt fencing to avoid sediment transport;</li> <li>Undertaking and completing proper disposal of excess spoils; backfilling and restoring the original contour of the entry pit and exit pit; and revegetating the area upon completion of the bore;</li> <li>Monitoring the drilling fluid, if a release of drilling fluids occurs, by a qualified environmental monitor or suitably trained water quality specialist to determine</li> </ul>	Less than significant

**Table ES-5 Summary of Impacts and Mitigation Measures**

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>the appropriate cleanup response; and</p> <ul style="list-style-type: none"> <li>Consulting with regulatory agencies to determine the next appropriate step to clean up the area.</li> </ul> <p><b>MM WAT-4b. Transport Sediment Spoils Off-Site.</b> Sediment spoils that are not utilized to backfill trenches in stream channels shall be transported and disposed of offsite at an approved facility.</p> <p><b>MM WAT-4c. Monitor Stream Crossing Construction.</b> A qualified environmental monitor or suitably trained water quality specialist shall be present at each stream crossing construction site to ensure compliance with applicable permits and mitigation.</p> <p><b>MM GEO-1b. Backfilling, Compaction, and Grading</b> (see Section 4.11, "Geologic Resources and Hazards").</p>	
<p><b>WAT-5a. Degradation of Water Quality due to Accidental Release of Untreated Gray Water, Deck Drainage, and other Discharges that do not Meet Water Quality Standards</b></p> <p>The FSRU or other Project vessels could accidentally release small amounts of contaminants, including bilge water, detergents, or human waste, to marine waters in excess of water quality standards.</p>	CEQA Class III; NEPA moderate adverse, short-term	None.	Less than significant
<p><b>WAT-5b. Degradation of Water Quality due to an Accidental Release of Diesel Fuel from the FSRU, Pipelaying Vessel, or Service Vessels</b></p> <p>An accidental release of diesel fuel to marine waters would violate Federal and State water quality standards or objectives.</p>	CEQA Class I; NEPA moderate adverse, short-term	None.	Significant

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<b>WAT-6:</b> <i>Temporary Degradation of Surface Water Quality During Maintenance Activities</i> Releases of petroleum or other contaminants during onshore pipeline maintenance activities could temporarily degrade surface water quality.	CEQA Class III; NEPA moderate adverse, short-term	<b>AM WAT-6a. Best Management Practices at Creek Crossings.</b> Best management practices would be employed at all creek crossings for major maintenance activities that could result in spills that could enter surface water pathways. <b>AM WAT-6b. Spill Response Plan.</b> The Applicant or its designated representative would prepare a spill response plan to protect surface water at and near the surface water crossings. This plan would be incorporated into the SWPPP as a requirement of the construction storm water NPDES permit and the SPCC Plan. The plan would identify specific measures to prevent, contain, and clean up any spills that could enter surface water pathways.	Less than significant
<b>WAT-7:</b> <i>Degradation of Surface Water Quality due to Erosion Caused by Regular Maintenance Activities</i> Regular maintenance of the pipelines could cause erosion and sedimentation of creeks from the use of maintenance vehicles or equipment, leading to short-term violations of water quality standards.	CEQA Class III; NEPA minor or moderate adverse, short-term	<b>AM WAT-6a. Best Management Practices at Creek Crossings.</b>	Less than significant
<b>WAT-8:</b> <i>Degradation of Water Quality due to Operational Thermal Discharges</i> During eight days per year, non-contact seawater cooling water would be discharged to the ocean at temperatures above ambient and could exceed the guidelines in the California Thermal Plan.	CEQA Class III; NEPA minor adverse, short-term	None.	Less than significant



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<b>ENVIRONMENTAL JUSTICE (Section 4.19)</b>			
<b>EJ-1:</b> <i>Disproportionate Impact on Minority and Low-Income Community of a Pipeline Accident near Center Road Pipeline MP 4.1</i> There would be a long-term risk of a pipeline rupture that could cause a fire that would disproportionately adversely affect minority or low-income communities near MP 4.1.	NEPA moderate adverse, long-term	<b>AM PS-4a. Class 3 Pipeline Design Criteria</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-4b. Pipeline Integrity Management Program</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). <b>MM PS-5a. Treat Manufactured Home Residential Community as a High Consequence Area</b> (see Section 4.2, "Public Safety: Hazards and Risk Analysis").	Less than significant

**Key to impacts (EIS/EIR section #):****AES** = Aesthetics (4.4)**AGR** = Agriculture and Soils (4.5)**AIR** = Air Quality (4.6)**BioMar** = Biological Resources–Marine (4.7)**CUL** = Cultural Resources (4.9)**EJ** = Environmental Justice (4.19)**ENE** = Energy and Minerals (4.10)**GEO** = Geologic Resources (4.11)**HAZ** = Hazardous Materials (4.12)**LU** = Land Use (4.13)**MT** = Marine Traffic (4.3)**NOI** = Noise (4.14)**PS** = Public Safety (4.2)**REC** = Recreation (4.15)**SOCIO** = Socioeconomics (4.16)**TerrBio** = Biological Resources–Terrestrial (4.8)**TRANS** = Transportation (4.17)**WAT** = Water Quality and Sediments (4.18)

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